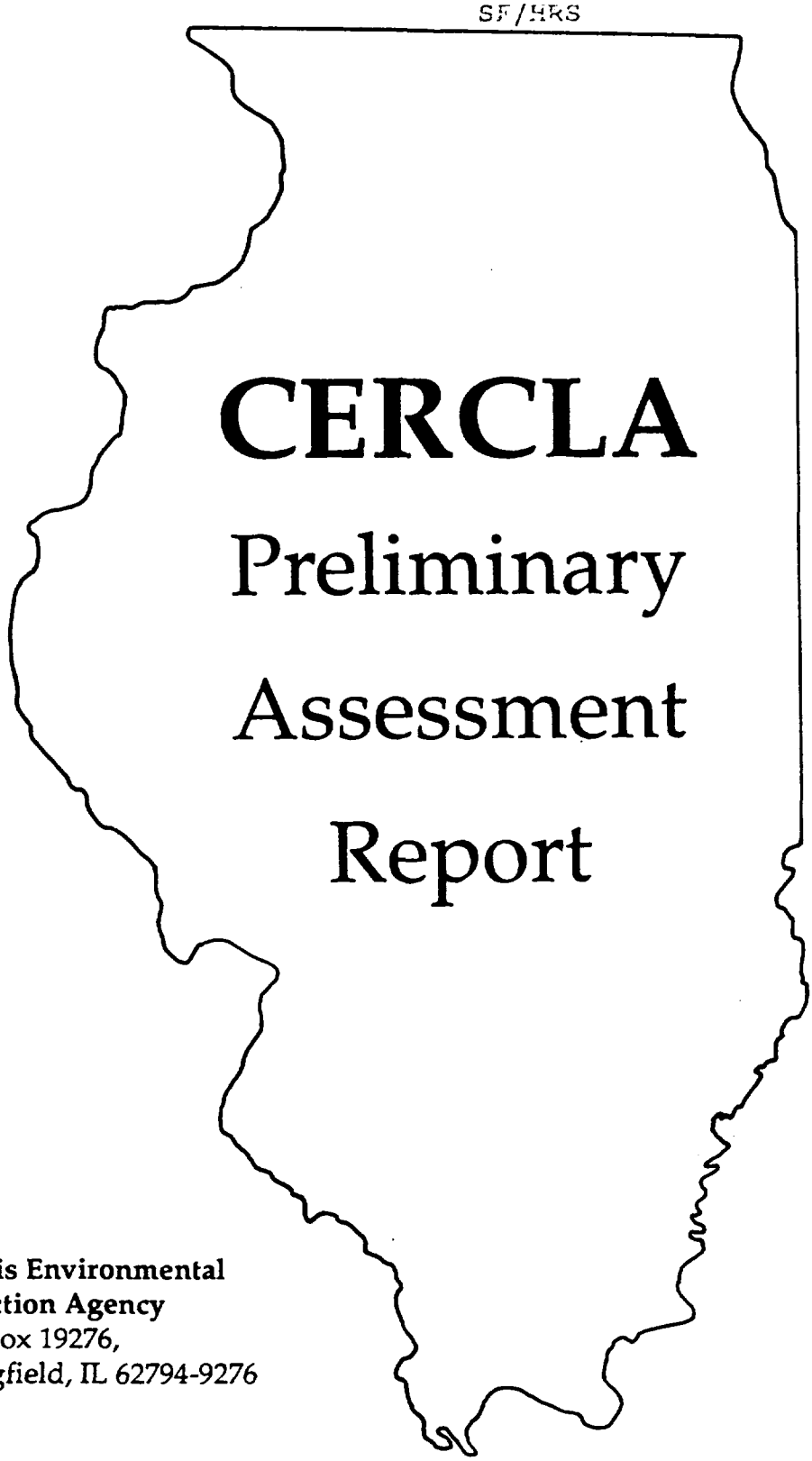
1/2.877

L..Not assigned-La Salle Co.
Matthiessen and Hegeler Zinc Co.
~~HRS: Not assigned~~ IL0000064782
SF/HRS



CERCLA

Preliminary Assessment Report

Illinois Environmental Protection Agency
P.O. Box 19276,
Springfield, IL 62794-9276

Confidential Material May be Enclosed

EXECUTIVE SUMMARY
MATTHIESSEN and HEGELER ZINC CO.
Table of Contents

1364

EXECUTIVE SUMMARY

1.0 INTRODUCTION

1.1 CERCLIS DISCOVERY

Matthiessen and Hegeler Zinc Co. (~~ILD Number Unassigned~~ ILD000064782) is presently in the process of being placed on CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) due to a request for discovery action initiated by the State of Illinois. This action was taken when during a CERCLA Screening Site Inspection of the Carus Chemical Company site in November, 1991 it was noted that the area contained large piles of slag materials. Later examination of aerial photographs and old plat maps indicated that the area was once a zinc smelting facility and should be evaluated for any possible adverse impact the company may have had on the environment. The historical investigation revealed that Carus Chemical Company is on a portion of property that was once used by the Matthiessen and Hegeler Zinc Company.

1.2 SITE LOCATION

Matthiessen and Hegeler Zinc Company is an inactive primary zinc smeltering and rolling facility located on the east side of La Salle (population 9,717), La salle County, Illinois. The site consists of approximately 160 acres. At the southern portion of the property are two active

SITE LOCATION

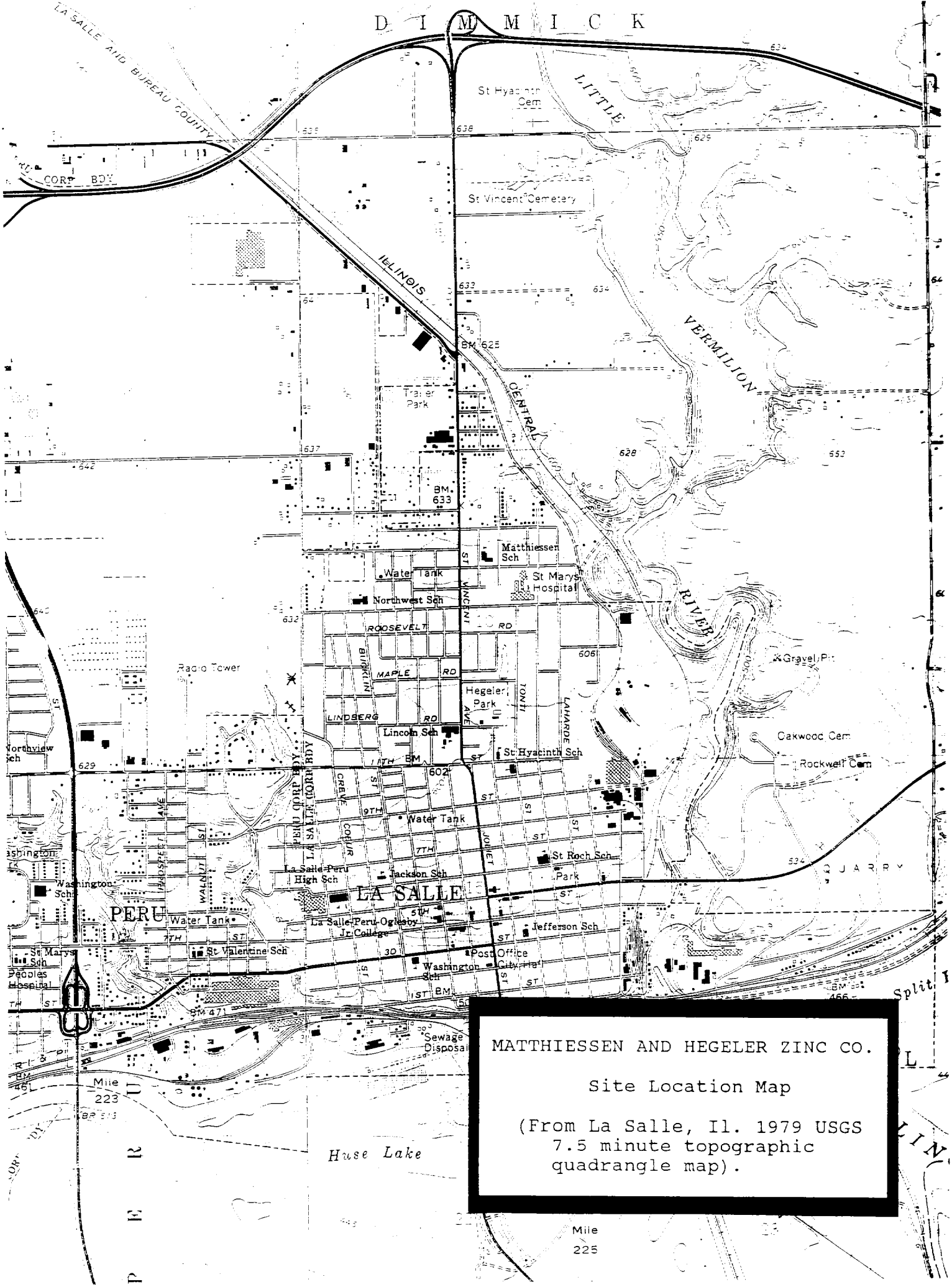
SDMS US EPA REGION V

COLOR-RESOLUTION - 2

IMAGERY INSERT FORM

The following page(s) of this document include color or resolution variations. Unless otherwise noted, these pages are available in monochrome. The original document is available for viewing at the Superfund Records Center.

SITE NAME	Mathiessen & Hegeler Zinc Co.
DOC ID #	146897
DESCRIPTION OF ITEM(S)	Map
PRP	RMD
DOCUMENT VARIATION	_X_ COLOR **OR** ___ RESOLUTION
DATE OF ITEM(S)	None
NO. OF ITEMS	1
PHASE	SAS
OPERABLE UNITS	
LOCATION	Box #__ Folder #___ Subsection ____
PHASE (AR DOCUMENTS ONLY)	___ Remedial ___ Removal ___ Deletion Docket ___Original ___ Update # ___ Volume ___ of ___
COMMENT(S)	
Site Location Map	



MATTHIESSEN AND HEGELER ZINC CO.

Site Location Map

(From La Salle, Il. 1979 USGS 7.5 minute topographic quadrangle map).

businesses. La Salle Rolling Mills is located at 1375 Ninth Street and is a zinc rolling mill that currently has approximately 100 employess. The company receives its supplies in ingot form and does not do any smeltering. Carus Chemical Company is a manufacturer of potassium permangate and other specialty Chemicals. It is located directly south of La Salle Rolling Mills at 1500 Eighth Street and employes approximately 105 people.

The old Mattheissen and Hegeler Zinc Company property currently has multiple owners. Carus Chemical Company owns approximately 13 acres in the north and 15 acres in the south part of the site as well as approximately 10 acres purchased from the Illinois Cental Railroad. Illinois Power Company owns a 150 foot by 150 foot section west of La Salle Rolling Mills and has an electrical substation on the property. Fred Carus owns 17 acres on the west side of the site and is a principle of Citizens Trust, which owns 112 acres of the site. La Salle Rolling Mills is located in the the southwest portion of the property owned by Fred Carus.

The property has multiple legal descriptions since it has several owners and is located in four adjacent sections. The site is legally described as being a part of the Southeast Quarter of Section Ten; the Southwest Quarter of Section Eleven; the Northwest Quarter of Section Fourteen and the Northeast Quarter of Section Fifteen, all in Township Thirty-three North, Range one East, of the Third Principal Meridian in LaSalle County, Illinois. The property presently

has two active businesses on the premises: LaSalle Rolling Mills on the west central side and Carus Chemical Company on the south side. The site is surrounded by the Little Vermillion River on the north and east sides and by private residences on the south and west sides. North and east of the site across the Little Vermillion River lies farmland and a limestone quarry respectively.

2.0 HISTORY

2.1 SITE HISTORY

According to information obtained from a search of old plat and Sanborn maps as well as interviews with personnel at La Salle Rolling Mills and Carus Chemical Company the Matthiessen and Hegeler zinc facility began operations at the La Salle location in 1858 and ceased all operations in 1978. Prior to 1858 the land was owned by the Illinois Central Railroad. Several important factors were instrumental in the decision to choose La Salle for the site of the zinc smelter. The La Salle location had a central location between the zinc ore producing regions in Wisconsin and Missouri and good coal supplies along the Illinois Central Railroad. This made it relatively easy to transport raw materials in and finished materials out via rail, the Illinois and Michigan Canal and the Illinois River.

The facility constructed a zinc rolling mill in 1866 and incorporated the business in 1871. Edward Hegeler invented a hybrid furnace in 1881 that increased the efficiency of the

roasting and smelting operation. The Hegeler furnace used producer gas as fuel and the sulfur dioxide generated during roasting was recovered and converted into sulfuric acid, which was stored in large tanks and sold as a by-product. The site also had an ammonium sulfate fertilizer plant which utilized some of the sulfuric acid generated and operated for only several years in the early 1950's.

Matheissen and Hegeler quit mining coal onsite in 1937 and in 1961 stopped smelting zinc. The manufacture of sulfuric acid was discontinued in 1968 and from 1968 until closing in 1978 the facility only did rolling operations. The land where the rolling operations were conducted was purchased by Fred and Cynthia Carus at an auction in 1979 and they took ownership in 1980. The site currently has LaSalle Rolling Mills and Carus Chemical Company on the property and the following demolished (unless noted otherwise) structures that were used by the Matthiessen and Hegeler Zinc Company:

1) Office (active and presently used by La Salle Rolling Mills).
2) Rolling mill (active and presently used by La Salle Rolling Mills).
3) Pottery works
4) Smelting furnaces
5) Old pottery works
6) Ore storage (OS)
6) Roasters (R)
7 Sulfuric acid works
8) Sulfuric acid pit storage
9) Rotary kiln
10) Engine house
11) Shops (presently on Carus Chemical Company property and were not demolished).
12) Coal mine
13) Boiler
14) Ammonium sulfate fertilizer plant
15) Sulfuric acid storage tanks

2.2 REGULATORY HISTORY

The Matthiessen and Hegeler Zinc Company has been out of business since 1978 and the Illinois Environmental Protection Agency has no permits issued under their name. The site currently has two active facilities operating on the property that are not presently regulated under RCRA (Resource Conservation and Recovery Act) since the materials used and generated are not classified as hazardous. Carus Chemical Company has permits issued by the Illinois Environmental Protection Agency for the operation of a treatment pond, sewer connections to the city of LaSalle and NPDES water permit for the discharge of treated water into the Little Vermillion River. IEPA files list La Salle Rolling mills as having been issued permits as a special waste generator for the disposal of non-hazardous wastes at Peoria City/County Landfill.

3.0 RECONNAISSANCE

3.1 CERCLA SITE RECONNAISSANCE VISIT

A CERCLA Site Reconnaissance Visit was conducted by the Illinois Environmental Protection Agency on July 29 and 30, and August 18, 1993. The Agency was represented by Robert Casper on July 29 with Fred and Cynthia Carus, owners, representing La Salle Rolling Mills. On July 30 the Agency was represented by Robert Casper, Tim Murphy and Dan Wells of the IEPA Rockford office. Carus Chemical Company was

represented by Horst Adolf, Director of Regulatory Affairs; Roger C. Threde, Vice President Manufacturing; Dr. C. Cayce Warf, Director, Health, Safety, and Environmental Affairs; David W. Covey, Director, Plant Support Services; Mark R. Sargis, Attorney at Law with the firm of Winston and Strawn of Chicago; and R. Scott Newman, P.E., Project Engineer with GeoSyntec Consultants of Baca Raton, Florida. On August 18, 1993 the IEPA was represented by Robert Casper, Peter Sorensen and Mark Weber and La Salle Rolling Mills was represented by Cynthia Carus.

Prior to meeting with Fred and Cynthia Carus on July 29 a visit was made to the Peru Water Department at 1415 Water Street to check the accuracy of the location of the four municipal wells that supply drinking water to the town. Rick Pirog, Superintendent of Peru Plant Operations, checked the four-mile radius topographic map an verified its accuracy and stated that the wells only supply water within the municipal boundaries. Mr. Pirog explained that he is employed by Total Environmental Service Technologies, a private company that the city of Peru has contracted with to operate the city water and wastewater treatment plant.

A meeting was held at La Salle Rolling Mills at 9:20 AM with Fred and Cynthia Carus, owners during which the purpose of the visit was explained and questions were answered. The Carus' explained the history of the site. Prior to 1858 the property was owned by the Illinois Central Railroad (ICRR), who in that year sold the land to E. C. Matthiessen and F.

W. Hegeler. The company went out of business in 1978 and during its years of operation was involved in the smelting and rolling of zinc as well as the mining of coal for the zinc processing. The site also had a sulfuric acid works and an ammonium sulfate fertilizer plant. Matthiessen and Hegeler quit mining coal in 1937 and in 1961 stopped smelting zinc. In 1967-1968 the manufacture of sulfuric acid was discontinued and from 1968 until closing in 1978 the facility only did rolling operations. The land where the rolling operations were conducted was purchased by Fred and Cynthia Carus at an auction in 1979 and they took ownership in 1980. The rolling mill presently employes approximately 100 people.

According to information provided by the Carus' the Matthiessen and Hegeler site presently has the following owners:

1) Carus Chemical Company: approximately 13 acres in the north and 15 acres in the south part.
2) Citizens Trust: approximately 112 acres in the area that contains the demolished buildings and furnaces. Fred Carus is a principal in the trust.
3) Fred Carus: owns 17 acres on the west side of the site.
4) Illinois Power: owns a 150 foot by 150 foot section west of the rolling mill. This parcel contains an electrical substation.
5) Carus Chemical Company probably now owns approximately 10 acres which was purchased from the Illinois Central Railroad (ICRR).

During a 1:55 PM visit with Sam McNeely of the La Salle Water Department a drawing was examined that showed the location of the old and new storm sewer lines that cross the Matthiessen and Hegeler property. Mr. McNeely stated that the new sewer appears to have some leaks on the M and H property because during dry weather the outfall on the Little Vermillion River still has a slight discharge.

David Stacker, Superintendent of the La Salle Water Department was visited at 2:45 PM and he located and numbered the old and new La Salle municipal wells on a topographic map. He said that well No. 5 will be sealed and capped this fall. The city does not serve water outside its municipal boundaries and he said the most recent population figure for the city is 9,717. Mr. Stacker agreed to furnish copies of the well pumpage and new well boring logs.

A later drive and inspection of the area where the actual zinc processing was conducted had to be prematurely halted due to the vehicle getting stuck in water-filled ruts in the road. During the drive two boys, approximately 15 years old, were observed riding BMX bicycles. It appeared that the site is an attraction to local children and adults since some of the hills and piles of debris were worn with trail grooves from bicycles and/or motorbikes. Also apparent were signs that four wheeled vehicles were driving on the property and that illegal dumping of trash had occurred. Access points to this portion of the site is limited by cyclone fencing but there are areas where it is possible to

enter the site and drive in.

A meeting was held on July 30, 1993 at the Carus Chemical Company office at 9:10 AM. The IEPA was represented by Robert Casper, Tim Murphy and Dan Wells. Carus Chemical Company was represented by Horst Adolf, Director of Regulatory Affairs; Roger C. Threde, Vice President Manufacturing; Dr. C. Cayce Warf, Director, Health, Safety, and Environmental Affairs; David W. Covey, Director, Plant Support Services; Mark R. Sargis, Attorney at Law with the firm of Winston and Strawn of Chicago; and R. Scott Newman, P.E., Project Engineer with GeoSyntec Consultants of Baca Raton, Florida. The Carus Chemical Company is in the process of developing a plan with the IEPA to do a voluntary cleanup of certain areas of the property that were shown during a CERCLA Screening Site Inspection in November, 1991 to be contaminated. Tim Murphy is the Project Manager on the voluntary cleanup at the facility and discussed the project and answered questions presented by the Carus representatives. Later the author explained that Carus Chemical Company is on property that was once part of the Matthiessen and Hegeler site and would be included in the Preliminary Assessment report. The objectives of the assessment were discussed and questions from the Carus representatives were answered. David Covey agreed to send the author a copy of a blueprint that indicates the boundaries and legal descriptions of the property owned by Carus Chemical Company.

After the meeting a tour of the facility was conducted during which photographs were taken and are included in this report. The company does not have a 24-hour a day security guard. Security at night and weekends consists of access being limited by a chain link fence with locked gates surrounding the site on the north, west and south sides and the steep banks leading to the Little Vermillion River on the east side. The group returned to the office at the conclusion of the tour and continued to discuss the site until 1:00 PM.

The author and Tim Murphy returned to La Salle Rolling Mills after leaving the Carus Chemical Company facility and met with Cynthia Carus. During the office visit Cynthia and Fred Carus numbered and listed the names of the following buildings on a 1958 aerial photo of the site:

1) Office (active)
2) Rolling mill (active)
3) Pottery works
4) Smelting furnaces
5) Old pottery works
6 (os) Ore storage
6 (R) Roasters
7) Sulfuric acid works
8) Sulfuric acid pit storage
9) Rotary kiln
10) Engine house
11) Shops (presently on Carus Chemical Company property and were not demolished)
12) Coal mine
13) Boiler
14) Ammonium sulfate fertilizer plant
15) Sulfuric acid storage tanks

Cynthia Carus indicated that she would like to have a copy of the lab results that were taken on property owned by them during the 1991 SSI of the Carus Chemical Company facility. After the office visit the author, Tim Murphy and

Cynthia Carus drove around the property to take photographs. The onsite reconnaissance was not completed due to a flat tire and the lateness of the day.

An offsite survey was conducted of the land surrounding the Mattheissen and Hageler site. The Little Vermillion River borders the property on the north and east sides. At the northwest corner lies a building that is not part of the original site that housed the Apollo Metal Works. North across the river is vacant land and east across the river is Illinois Cement Company, Oakwood Cemetery and vacant land. The south and west sides are surrounded by private residences. Drainage from the site flows towards the east and enters into the Little Vermillion River.

4.0 MIGRATION PATHWAYS

4.1 GEOLOGY

Well logs obtained from Illinois State Water Survey and the Illinois Geological Survey and from water operators in Peru and La Salle indicate that Drinking water in the area is obtained from groundwater. The geology of the Mattheissen and Hegeler Zinc Company area consists of Wisconsin glacial till overlying the bedrock. The bedrock consists of fractured Silurian and Ordovician-aged dolomites and the St. Peter sandstone. The Illinois River lies approximately three-quarter of a mile south of the site and glacial deposits in this area are overlain by alluvial deposits.

4.2 GROUNDWATER PATHWAY

Wells are used exclusively for drinking in the La Salle-Peru area. The nearest municipal well is La Salle Well 4 (IEPA No. 11465) located approximately 3700 feet south of the site. This well is a 63 feet deep well that draws water from the sand and gravel aquifer. La Salle (population 9,717) obtains all their drinking water from a cluster of four active wells located approximately three-quarters of a mile south of Mathiessen and Hegeler. The city also drilled two additional wells in this area that are scheduled to be operational during 1993. The six wells range in depth from 61 feet to 63 feet and utilize the sand and gravel aquifer. In 1992 they supplied a total of 1.034 billion gallons of water. The city of Peru (population 10,886) obtains its water from four wells located approximately two miles west-southwest of the site. These wells range in depth from 2,591 feet to 2,764 feet and draw water water from the St. Peter sandstone. In 1992 produced a total of 937 million gallons of water. The town of Peru contracts with Total Environmental Service Technologies, a privately owned company, to operate the city water and wastewater treatment plant. Neither Peru or La Salle supply water outside their municipal boundaries, according to their water operators. Oglesby (population 3,979) is approximately 3.5 miles south-southeast and has two wells that are 2,795 and 2,812 feet deep. The village of North Utica (population 1,067) is approximately 3.5 miles east and has two wells: well 1 is 618 feet deep and is cased

to 175 feet and well 2 is 1078 feet deep and cased to 192 feet.

The estimated population potentially using groundwater around the Mattheissen and Hegeler Zinc Company facility is:

Distance (miles)	Potential Population
0 to 1/4	10
>1/4 to 1/2	26
>1/2 to 1	9,944
>1 to 2	303
>2 to 3	11,186
>3 to 4	5,424

The above figures were estimated from the number of wells in each distance ring and the population served by each and by counting houses in rural areas on USGS topographic quadrangle maps and multiplying by the average persons per household in LaSalle county according to the 1990 Census.

4.3 SURFACE WATER

According to Illinois Environmental Protection Agency files there are no known surface drinking water intakes located along the 15-mile downstream surface water route from the facility. The site contains two pathways by which drainage can enter surface water. Portions of the site slope towards the east and drainage would follow natural pathways to the Little Vermillion River located adjacent to the site on the east. Also the city of LaSalle has an old abandoned

storm sewer line running across the property that was not closed up to the river and during the Site Reconnaissance visit water was observed flowing into the river. The little Vermillion River flows south into the Illinois River and the 15-mile downstream surface water route includes approximately 1.2 miles in the Little Vermillion River and approximately 13.8 miles in the Illinois River, which flows west. According to wetland inventory maps there are approximately 0.4 miles of wetland frontage along the Little Vermillion River and Approximately 16.9 miles along the Illnois River. The Illinois Department of Conservation states beyond the 15-mile streampath are located the Lake DePue Fish and Wildlife Area and the Spring Lake Heron Colony which provides breeding habitat for the state endangered Great Egret. According to the Flood Insurance Rate Map for the City of LaSalle area along the Little Vermilion River is in the 100 year floodplain and the rest of the site lies outside the 500 year flood plain.

4.4 AIR PATHWAY

No air releases are documented due to activities at Matthiessen and Hegeler Zinc Company. However, the potential exists that particulates could become airborne from dried materials in the slag and rubble piles. A CERCLA Screening Site Inspection conducted in November, 1991 indicate that the slag piles contain elevatd levels of heavy metals. The estimate potential for release in a 4-mile radius of the site

is:

Distance (miles)	Population
Onsite	200
0 to 1/4	1,468
>1/4 to 1/2	2,455
>1/2 to 1	5,958
>1 to 2	5,202
>2 to 3	8,277
>3 to 4	3,381

The above figures were estimated from USGS topographic quadrangle maps and the persons per household for LaSalle county. Illinois Department of Conservation records indicate that there are no known sensitive areas located onsite or within a half mile radius of the facility. According to wetland inventory maps the nearest documented wetlands consists of approximately 3.0 acres classified as Excavated Intermittenly Exposed Pulustrine with an Unconsolidated Bottom in the Carus Chemical Company treatment pond and approximately 6.0 acres of Temorarily Flooded Broad-leaved deciduous Forested Pulustrine wetlands adjacent to the site along the Little Vermilion River. The total wetlands within a half mile of the site consists of:

Distance (miles)	Number of acres
Onsite	3
0 to 1/4	12
>1/4 to 1/2	5

4.5 SOIL EXPOSURE PATHWAY

Potential hazardous materials of slag and demolition piles are in a fenced area where people are not authorized to tresspass. The site is not in a high traffic area and access is limited to controlled gates. The Little Vermillon River forms a natural barrier on the east side but the property is not patrolled by a guard and during times when there are no workers at the Carus Chemical Company or LaSalle Rolling Mills the site is accessable to trespassers. This was evident during the site reconnaissance visit when children were observed playing. The nearest private residence is located adjacent to the property on the west and south sides. The nearest school is located approximately 800 feet west of the facility. The proximity of the Little Vermillion River and nearby residences make the site attractive to nearby residents, especially children. According to the Illinois Department of Conservation there are no sensitive terrestrial environments located within a half-mile radius of the facility.

USEPA FORM 2050

Matthiessen and Hegeler Zinc Co.

OMB Approval Number: 2050-0095
Approved for Use Through: 4/95

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION State: Il CERCLIS Number: Not assigned CERCLIS Discovery Date:

1. General Site Information

Name:	Street Address:
Matthiessen and Hegeler Zinc Co.	East side of La Salle

City:	State:	Zip Code:	County:	Co. Code:	Cong. Dist:
La Salle	Il	61301	La Salle	099	14

Latitude:	Longitude:	Approx. Area of Site:	Status of Site:
0 0′ 0.0"	0 0′ 0.0"	160 acres	Inactive

2. Owner/Operator Information

Owner:	Operator:
Fred/Cynthia Carus, Carus Chem. Co.	
Street Address:	Street Address:
City: La Salle	City:

State:	Zip Code:	Telephone:	State:	Zip Code:	Telephone:
Il	61301				

Type of Ownership:	How Initially Identified:
Private	State/Local Program

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION State: Il CERCLIS Number: Not assigned CERCLIS Discovery Date:

3. Site Evaluator Information

Name of Evaluator:	Agency/Organization:	Date Prepared:
Robert Casper	Illinois EPA	11/18/93

Street Address:	City:	State:
2200 Churchill Road	Springfield	Il

Name of EPA or State Agency Contact:	Telephone:
Robert Casper	217/ 782-6761

Street Address:	City:	State:
2200 Churchill Road	Springfield	Il

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: No	CERCLIS Recommendation: Higher Priority SI	Signature:
Date:	Date:	Name: Position:

POTENTIAL HAZARDOUS

WASTE SITE

PRELIMINARY ASSESSMENT FORM

IDENTIFICATION

State: Il

CERCLIS Number: Not assigned

CERCLIS Discovery Date:

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site:
- Residential
- Forest/Fields

Site Setting: Suburban

Years of Operation:
- Beginning Year: 1858
- Ending Year: 1978

Type of Site Operations:
- Manufacturing
  - Inorganic Chemicals
  - Primary Metals
- Mining
  - Coal
- Other:
  - Zinc smeltering, zinc rolling.

Waste Generated: Onsite

Waste Deposition Authorized By: Former Owner

Waste Accessible to the Public: Yes

Distance to Nearest Dwelling, School, or Workplace: 0 Feet

6. Waste Characteristics Information

Source Type	Quantity	Tier
Pile	3.60e+05 sq ft	A

General Types of Waste:
- Other:
  - Slag from zinc smelter

Physical State of Waste as Deposited
- Solid

Tier Legend
- C = Constituent
- W = Wastestream
- V = Volume
- A = Area

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION State: Il CERCLIS Number: Not assigned CERCLIS Discovery Date:

7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles: Yes Type of Ground Water Wells Within 4 Miles: Municipal, Private Depth to Shallowest Aquifer: 60 Feet Karst Terrain/Aquifer Present: No	Is There a Suspected Release to Ground Water: Yes Have Primary Target Drinking Water Wells Been Identified: No Nearest Designated Wellhead Protection Area: >0 - 4 Miles	List Secondary Target Population Served by Ground Water Withdrawn From:

0 - 1/4 Mile	10
>1/4 - 1/2 Mile	26
>1/2 - 1 Mile	9944
>1 - 2 Miles	303
>2 - 3 Miles	11186
>3 - 4 Miles	5424
Total	26893

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION State: Il CERCLIS Number: Not assigned CERCLIS Discovery Date:

8. Surface Water Pathway — Part 1 of 4

Type of Surface Water Draining Site and 15 Miles Downstream:	Shortest Overland Distance From Any Source to Surface Water:
Stream River	0 Feet 0.0 Miles
Is there a Suspected Release to Surface Water: No	Site is Located in: >10 yr - 100 yr floodplai

8. Surface Water Pathway — Part 2 of 4

Drinking Water Intakes Along the Surface Water Migration Path: No

Have Primary Target Drinking Water Intakes Been Identified: No

Secondary Target Drinking Water Intakes:
None

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION State: Il CERCLIS Number: Not assigned CERCLIS Discovery Date:

8. Surface Water Pathway — Part 3 of 4

Fisheries Located Along the Surface Water Migration Path: Yes

Have Primary Target Fisheries Been Identified: No

Secondary Target Fisheries:

Fishery Name	Water Body Type/Flow(cfs)
Illinois River	large river/ >10000

8. Surface Water Pathway — Part 4 of 4

Wetlands Located Along the Surface Water Migration Path? (y/n) Yes

Have Primary Target Wetlands Been Identified? (y/n) No

Secondary Target Wetlands:

Water Body/Flow(cfs)		Frontage(mi)
small-moderate stream/	10-100	0.1 to 1
large river/ >10000		>16 to 20

Other Sensitive Environments Along the Surface Water Migration Path: No

Have Primary Target Sensitive Environments Been Identified: No

Secondary Target Sensitive Environments:
None

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM

IDENTIFICATION

State: Il

CERCLIS Number: Not assigned

CERCLIS Discovery Date:

9. Soil Exposure Pathway

Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination: No

Number of Workers Onsite: 101 - 1000

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination: No

10. Air Pathway

Total Population on or Within:	
Onsite	200
0 - 1/4 Mile	1468
>1/4 - 1/2 Mile	2455
>1/2 - 1 Mile	5958
>1 - 2 Miles	5202
>2 - 3 Miles	8277
>3 - 4 Miles	3381
Total	26941

Is There a Suspected Release to Air: No

Wetlands Located Within 4 Miles of the Site: Yes

Other Sensitive Environments Located Within 4 Miles of the Site: No

Sensitive Environments Within 1/2 Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area(acres)
Onsite	Wetlands (1 to 50 acres)

SDMS US EPA REGION V
FORMAT- OVERSIZED - 5
IMAGERY INSERT FORM

The item(s) listed below are not available in SDMS. In order to view original document or document pages, contact the Superfund Records Center.

SITE NAME	**Matthiessen & Hegeler Zinc Co.**		
DOC ID #	**146897**		
DESCRIPTION OF ITEM(S)	**Maps**		
REASON WHY UNSCANNABLE	**_X_ OVERSIZED**	**OR**	**___ FORMAT**
DATE OF ITEM(S)	**1983**		
NO. OF ITEMS	**2**		
PHASE	**SAS**		
PRP	**RMD**		
PHASE (AR DOCUMENTS ONLY)	**___ Remedial ___ Removal ___ Deletion Docket ___ AR** **___ Original ____ Update # ____ Volume ____ of ____**		
O.U.			
LOCATION	**Box # ____ Folder # ____ Subsection _____**		
COMMENT(S)			
4-Mile Radius Map, 15-Mile Surface Water Map			

SDMS US EPA REGION V

COLOR-RESOLUTION - 2

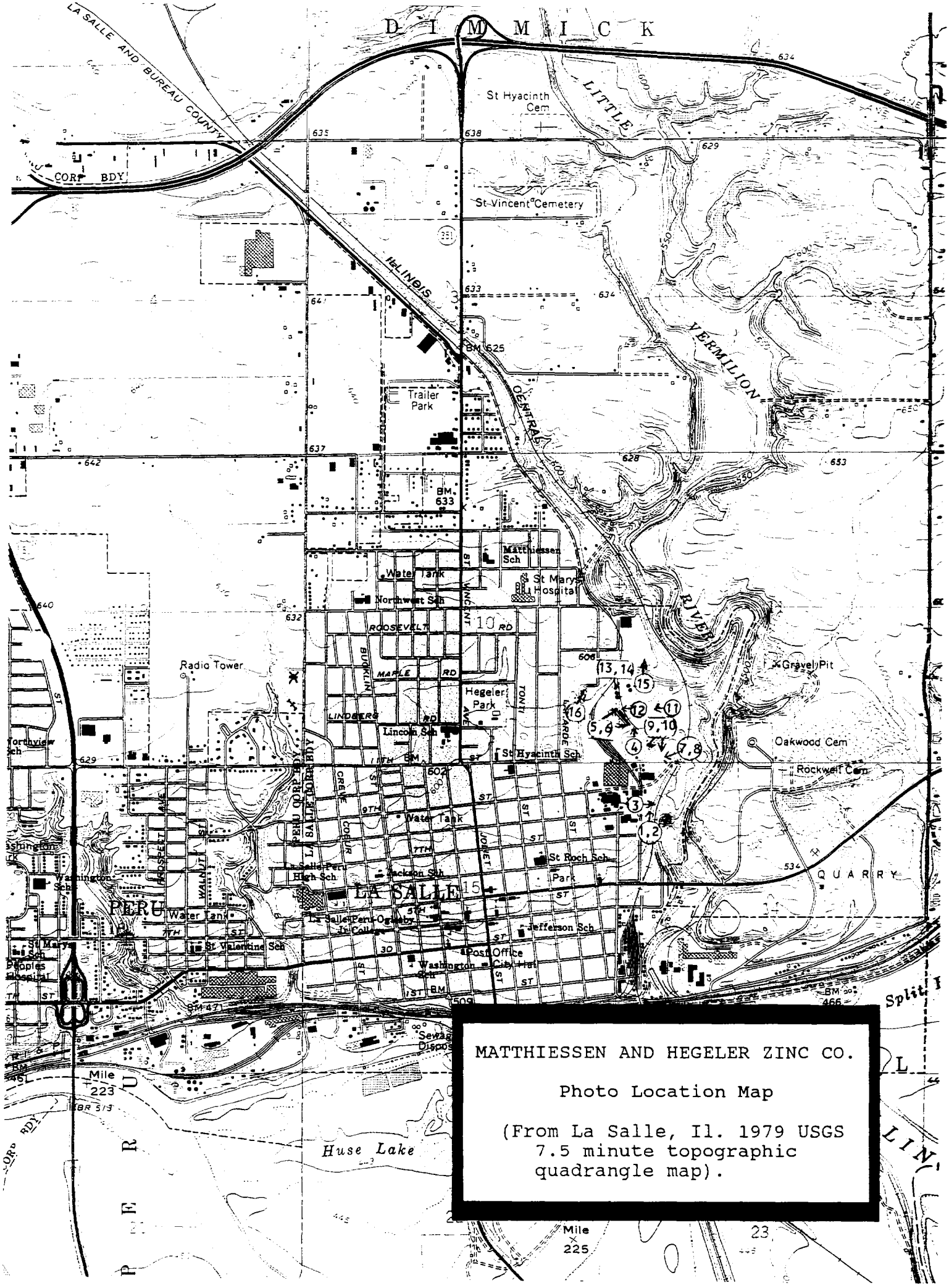
IMAGERY INSERT FORM

The following page(s) of this document include color or resolution variations. Unless otherwise noted, these pages are available in monochrome. The original document is available for viewing at the Superfund Records Center.

SITE NAME	Mathiessen & Hegeler Zinc Co.
DOC ID #	146897
DESCRIPTION OF ITEM(S)	Photos
PRP	RMD
DOCUMENT VARIATION	_X_ COLOR **OR** ___ RESOLUTION
DATE OF ITEM(S)	None
NO. OF ITEMS	9
PHASE	SAS
OPERABLE UNITS	
LOCATION	Box #__ Folder #___ Subsection ____
PHASE (AR DOCUMENTS ONLY)	___ Remedial ___ Removal ___ Deletion Docket ___Original ___ Update # ___ Volume ___ of ___
COMMENT(S)	
Photo Location Map, Photos of Site	

PHOTOS

Matthiessen and Hegeler Zinc Co.



MATTHIESSEN AND HEGELER ZINC CO.

Photo Location Map

(From La Salle, Il. 1979 USGS 7.5 minute topographic quadrangle map).

DATE: July, 30, 1993

TIME: 11:25 AM

PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER: 1,2

LOCATION: L
La Salle County
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the north to east.

Photo taken on Carus Chemical Company property west of the Little Vermilion River. Piles of slag and cinders are exposed in this area.

DATE:

TIME:

PHOTOGRAPH TAKEN BY:

PHOTO NUMBER

LOCATION: L

ILD: Not assigned

PICTURE TAKEN TOWARD

DATE: July, 30, 1993

TIME: 11:25 AM

PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER: 3

LOCATION: L
La Salle County
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the east.

Photo taken on Carus Chemical Company property west of the Little Vermilion River. The land drops sharply to the river.

DATE: July 30, 1993

TIME: 1:45 PM

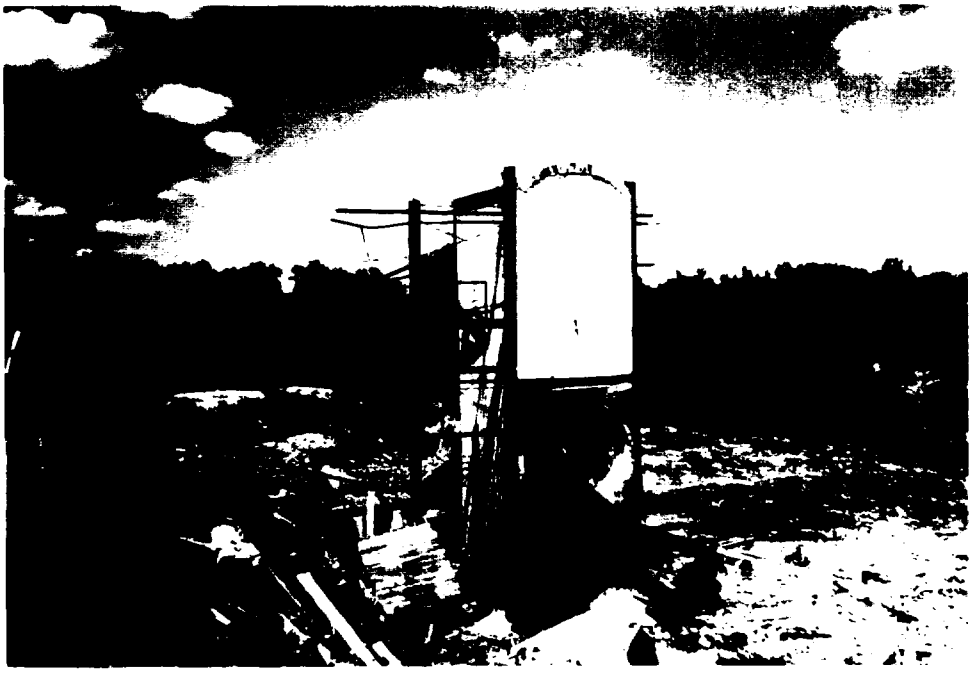
PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER 4

LOCATION: L
La Salle Co.
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the north.

The following eleven photos were taken from the area where the ore storage and roasters were located.



DATE: July, 30, 1993

TIME: 1:45 PM

PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER: 5,6

LOCATION: L
La Salle County
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the northeast to east.

Blue colored pool is fed a small stream that forms where an old city of La Salle sewer ran through the property. The sewer is partially collapsed.

DATE:

TIME:

PHOTOGRAPH TAKEN BY:

PHOTO NUMBER

LOCATION: L

ILD

PICTURE TAKEN TOWARD

DATE: July, 30, 1993

TIME: 1:45 PM

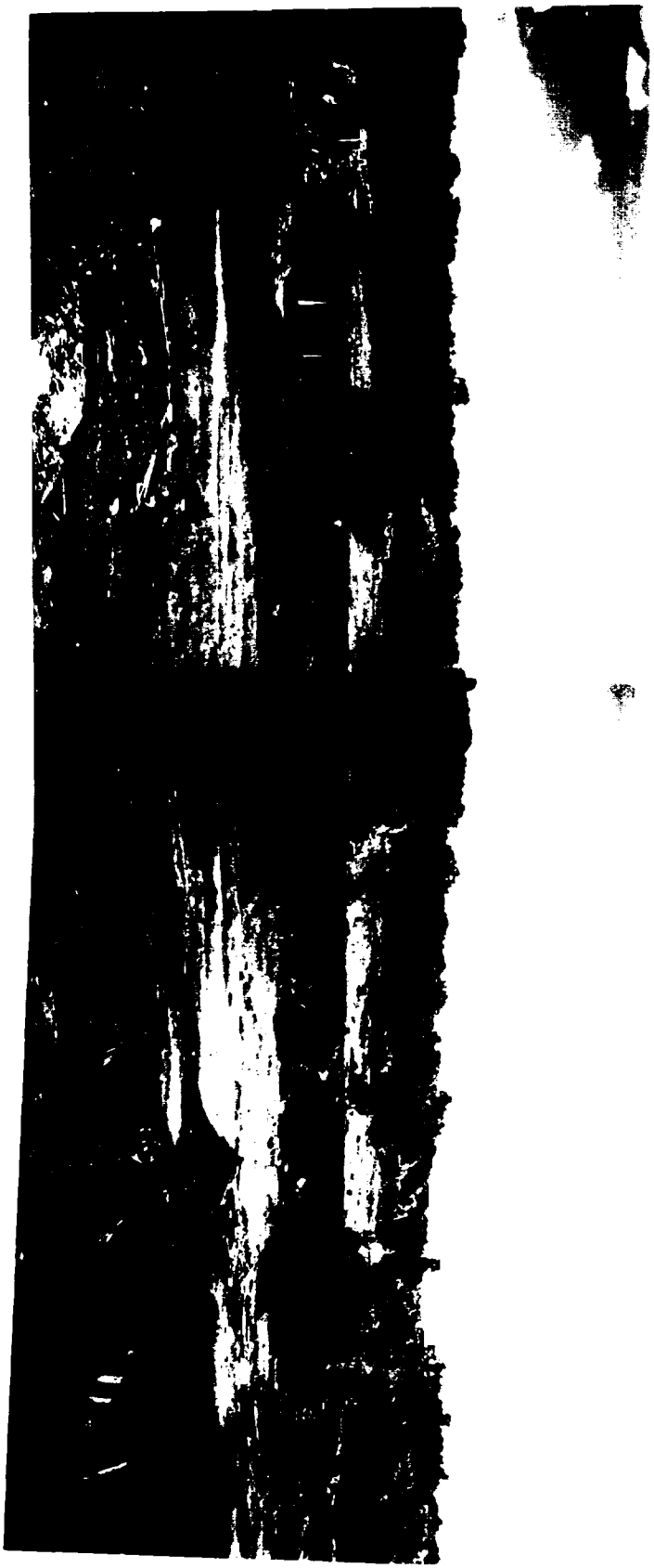
PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER: 7,8

LOCATION: L
La Salle County
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the southeast.

Photo shows the remains of the smelting furnaces. The buildings onsite were demolished with explosives by the owners of La Salle Rolling Mills



DATE:

TIME:

PHOTOGRAPH TAKEN BY:

PHOTO NUMBER

LOCATION:

ILD

PICTURE TAKEN TOWARD

DATE: July, 30, 1993

TIME: 1:45 PM

PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER: 9,10

LOCATION:
La Salle County
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the south-southwest.

Photo shows portion of Carus Chemical Company at left center and La Salle Rolling Mills on the right.

DATE:

TIME:

PHOTOGRAPH TAKEN BY:

PHOTO NUMBER

LOCATION: L

ILD

PICTURE TAKEN TOWARD

DATE: July, 30, 1993

TIME: 2:05 PM

PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER: 11

LOCATION:
La Salle County
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the west.

Photo showing portion of the old city of La Salle sewer. The city had an easment for the old sewer and presently has an easment across the property for the newer sewer.

DATE: July 30, 1993

TIME: 2:10 PM

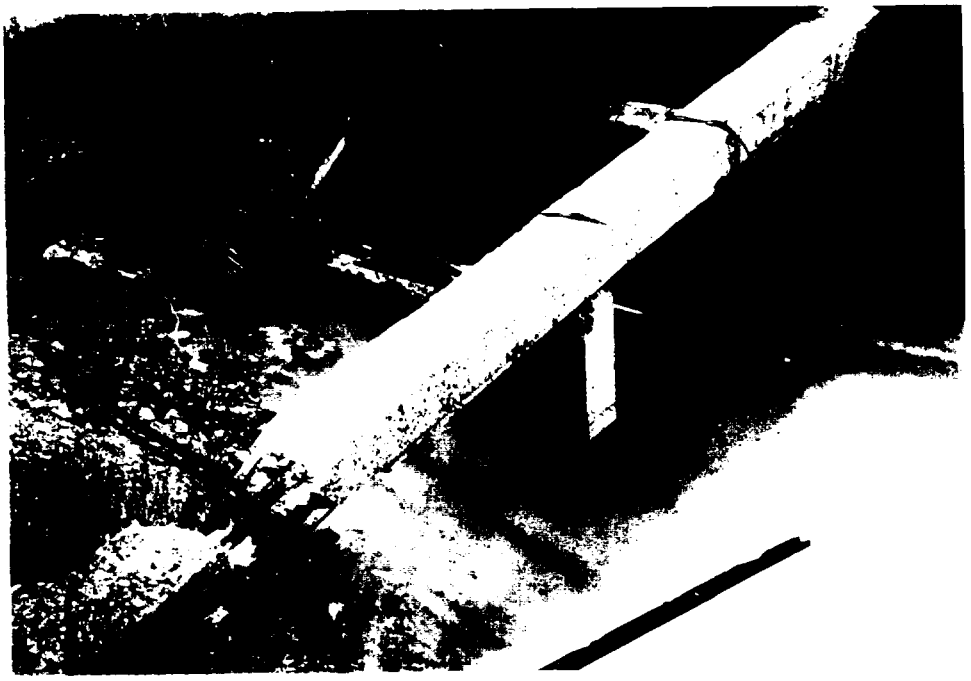
PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER: 12

LOCATION:
La Salle Co.
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the west

Water collects in this area to form a small stream. The exact source of the water is unknown.



DATE: August 18, 1993

TIME: 10:38 AM

PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER: 13,14

LOCATION:
La Salle County
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the south.

Photo of the foundations of large tanks that were used for the storage of sulfuric acid that was produced as a by-product of the zinc smelting operation. In the center behind the foundation is a patch of reeds.

DATE:

TIME:

PHOTOGRAPH TAKEN BY:

PHOTO NUMBER

LOCATION:

ILD

PICTURE TAKEN TOWARD

DATE: August 18, 1993

TIME: 10:40 AM

PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER: 15

LOCATION:
La Salle County
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the north.

Photo showing a pile of drums. There were several areas where it appeared illegal dumping of house wastes and appliances had occurred.

DATE: August 18, 1993

TIME: 10:52 AM

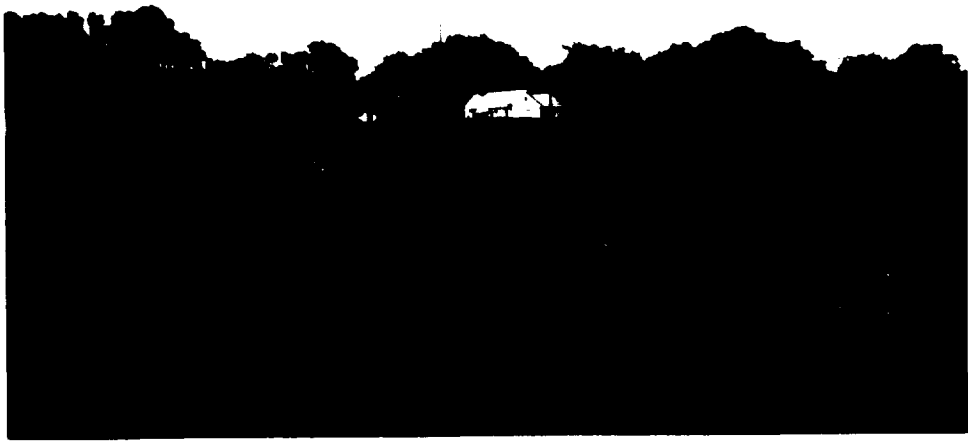
PHOTOGRAPH TAKEN BY:
Robert Casper

PHOTO NUMBER: 16

LOCATION:
La Salle County
Matthiessen & Hegeler
ILD: Not assigned

PICTURE TAKEN TOWARD
the north-northeast.

The photo was taken from Zinc Street. The field is part of the site and the houses in the back-ground are adjacent to the property.



SUPPORTING DOCUMENTS
Table of Contents

REFERENCE 1

Well Inventory Reports

Vick - See me - he

SWS 1992 ILLINOIS WATER INVENTORY PROGRAM

Illinois State Water Survey

Hydrology Division
2204 Griffith Drive
Champaign, Illinois 61820-7495
Telephone (217) 333-0239

6-10-93

We have records of the following wells/intakes.
Please correct inaccuracies and add missing information on this form.
Enter your water level information on back, if available.

09990850 PERU
TIM PERRA
CERTIFIED OPERATOR
BOX 483
PERU, IL 61354

SIC Code: 4941
Name of person to contact: ____________
Title: ____________
Phone: (815)224-1650

WELL# OR SURFACE INTAKE#	STATUS	TWP RNG SEC	DEPTH	GALLONS PUMPED M.G. MAX DAILY	TOTAL ANNUAL
1	Capped	33N 01E 17.1A	1365		
2	Capped	33N 01E 20.2H	1254		
3	Capped	33N 01E 16.8A	1255		
4	Observation	33N 01E 16.8A	1506		
5	In Use	33N 01E 20.2H	2601	1.184	244.136
6	In Use	33N 01E 16.8A	2665	1.551	208.041
7	In Use	33N 01E 20.1H	2591	1.529	282.323
8	In Use	33N 01E 08.2F	2764	1.191	202.593

1. 1992 Total self-supplied pumpage Gallons 937.093 M.G.

   Gallons purchased 0 Name of your supplier —

2. Do you sell water to another public water supply system? Yes___ No X

3. Estimate population directly served inside corporate limits__________
   (retail)
   outside corporate limits__________

4. Number of residential services:__________ Annual gallons:__________

5. Number of commercial services:__________ Annual gallons:__________
   (non-manufacturing)

6. Number of industrial services:__________ Annual gallons:__________
   (manufacturing)

During the last year have any of your wells had treatment or rehabilitation work to restore capacity, like surging, jetting, acidizing, shock chlorination, etc.?

Yes____ No X if yes, please list which well numbers and type of treatments.

If there was a change from last year; please provide a copy of your water rate schedule and a map of your service area.

Well No.	Airline* Length	WATER LEVELS							
		Water Level Date	Nonpumping			Pumping			
			Hours Off	Gage** reading (ft)	Depth to water (ft)	Hours on	Gage** reading	Depth to water (ft)	Pumping rate (gpm)
5	251	6/9/93	.4	178	~~178~~ 163	.1	62	~~62~~ 84	1180
6	256	6/9/93	.5	130	~~130~~ 104	.1	168	~~168~~ 183	1090
7	340	6/9/93	.1	245	~~245~~ 235	.1	165	~~165~~ 175	1240
8	400	6-9-93	.1	190	~~190~~ 220	.25	140	~~140~~ 150	1000

* Same as pump setting

** If gage reading is in pounds per square inch (psi), indicate that in column.

If gage is direct reading, the gage reading and depth to water should be the same.

During the last year were water conservation practices requested or imposed?

Yes, because of the limited treatment capacity ___ No X

Yes, because of limited water availability _____

Yes, because _____

Type of restriction Dates Success or Est. amount of savings

Are there any future plans to increase treatment or supply capacity? No

Do you discharge water?

No ___

Yes, to a municipal wastewater treatment system X System name _____

Yes, to a stream or other surface water body X Your NPDES permit# _____

Yes, to a septic system ___

Yes, to _____

	WELL 5		6		7		8	
	TOTAL	DAILY MAX	TOTAL	DAILY MAX	TOTAL	DAILY MAX	TOTAL	DAILY MAX
S	14,709	833	32,231	1.229	17,542	1.195	27,703	1.154
F	17,660	1.184	22,426	1.247	17,634	1.529	18,547	.867
M	26,973	1.695	14,476	1.185	9,549	1.155	16,279	1.143
A	20,474	1.001	10,693	.862	20,041	.998	16,501	.878
M	22,225	.925	17,588	1.551	24,126	1.124	22,415	1.112
J	22,438	.968	20,532	.804	31,682	.981	21,596	1.191
J	18,774	.916	15,538	.611	27,197	1.072	15,132	1.026
A	20,317	.876	17,217	.847	26,184	1.005	16,534	.967
S	19,464	.769	14,454	.687	25,147	1.349	15,038	.921
O	20,965	.785	16,354	.944	24,902	.990	11,858	1.075
N	20,059	.845	13,886	.734	32,109	1.509	11,140	.631
D	21,278	.816	12,986	.558	25,810	1.029	9,850	.772
	244,136	1.184	208,041	1.551	282,323	1.569	202,593	1.191

PAUL MURPHY
Mayor
815-223-3755

FRANCES BARATTA
City Clerk
815-223-0077

ROMAN RIMMELE
Treasurer
815-223-3050

ANTHONY C. RACCUGLIA
Attorney
815-223-0230

CITY OF LA SALLE

La Salle County, Illinois

City Offices — 745 Second Street — La Salle, Illinois 61301-2599

LOIS ANN SCHOTT
Comptroller
815-223-4586

THOMAS KRAMARSIC
Chief of Police
815-223-2131

WILLIAM BACIDORE
Fire Chief
815-223-0834

DAVID L. STACKER
Superintendent
815-223-6344

PUMPAGE FOR 1992

MONTH	WATER TREATED GALLONS	AVERAGE	CHLORINE POUNDS	FLUORIDE POUNDS
January	80,944,000	2.611	1,231	3,757
February	77,352,000	2.667	1,028	3,392
March	82,908,000	2.674	1,022	3,400
April	80,751,000	2.691	1,041	3,706
May	85,571,000	2.760	1,312	4,345
June	83,853,000	2.795	1,241	3,762
July	80,095,000	2.583	1,187	3,700
August	80,158,000	2.585	1,067	3,257
September	91,093,000	3.036	1,119	3,950
October	109,164,000	3.521	1,292	3,460
November	92,299,800	3.076	1,145	3,412
December	89,896,000	2.899	1,139	2,752
TOTALS	1,034,084,000	33,898	13,824	41,893

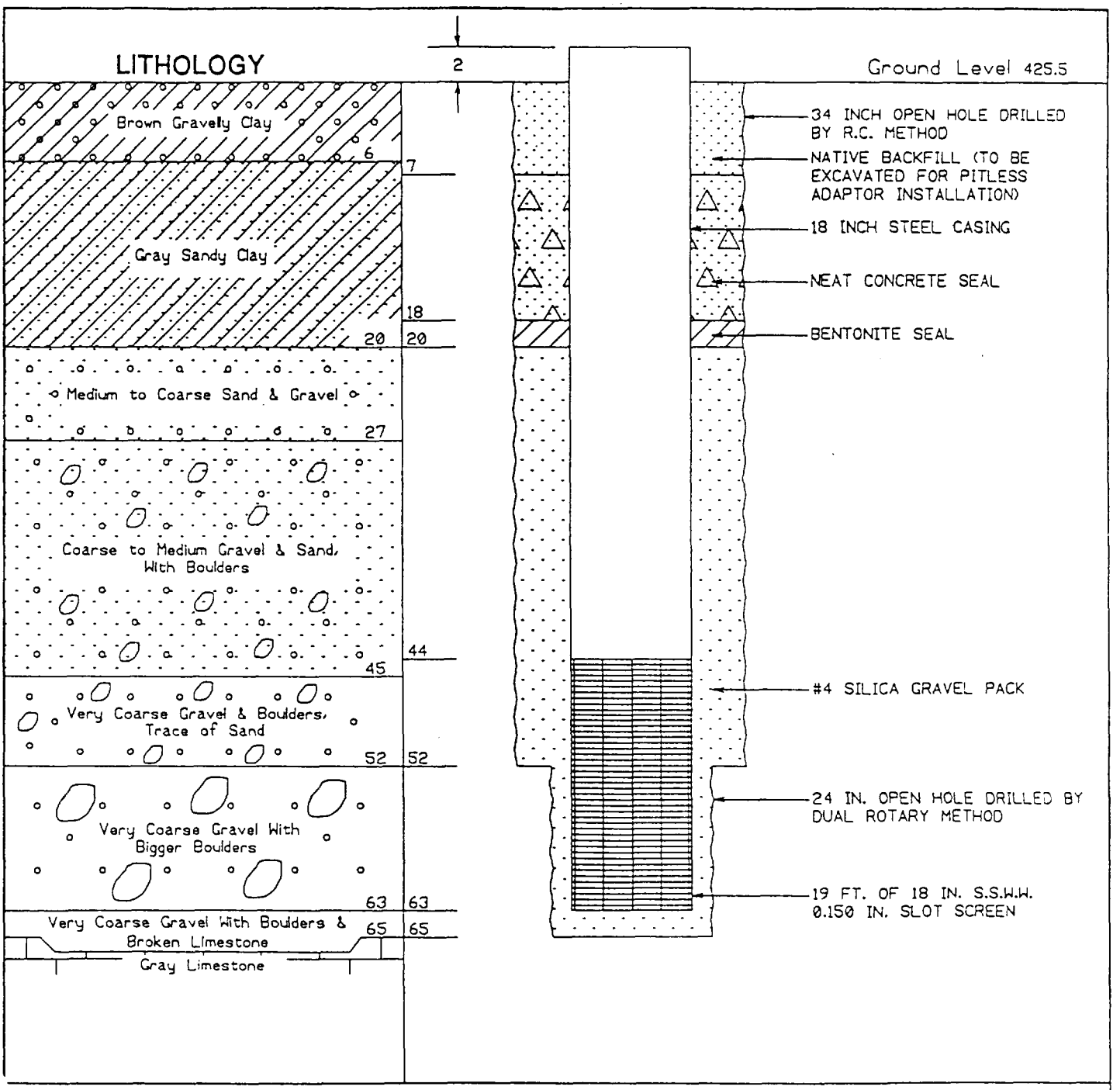
4 wells

Avg — 8,474,500 Gallons per Well per Month

Avg — 708,276 Gallons per Well per DAY

Well #4 — 63' Deep
Well #5 — 63' "
Well #6 — 66' "
Well #7 — 61' "
Well #8 — 64.5' "

WELL #9 JANUARY 1993



City LaSalle State Illinois

Well Location 118' N of Section Line, 69' S of Well #5, Approx. 160' W of Little Vemilion River

County LaSalle Twp. LaSalle T 33N R 1E South Half 14

Test Rate _____ GPM | Well No. 9

Well No. 3299

WELL #8

Owner's Name: CITY OF LASALLE

Address: LaSalle, Illinois

Location: 3085.148' South, 404.780' East of West ¼ Cor. of Section 14 LaSalle [33N 1E] Twp. in LaSalle County.

Date: September 17 & 18, 1990

Well

Diameter: 18"

Depth: 69'½"

Cased to: 49'½"

Water levels

Static: 17'

Pumping:

GPM: 1900

Time: 96 Hours

Screen

Type of: Stainless Steel

Length: 20'

Diameter: 18"PS

Slot: .300

Seal: Welded to Casing

Pump

Size:

Type:

Make:

Setting:

Pitless Unit:

Who did work: Jet, Harold, Bryan, Kelvin

Permit No.:

Well Log: Rough Ref.# 2011

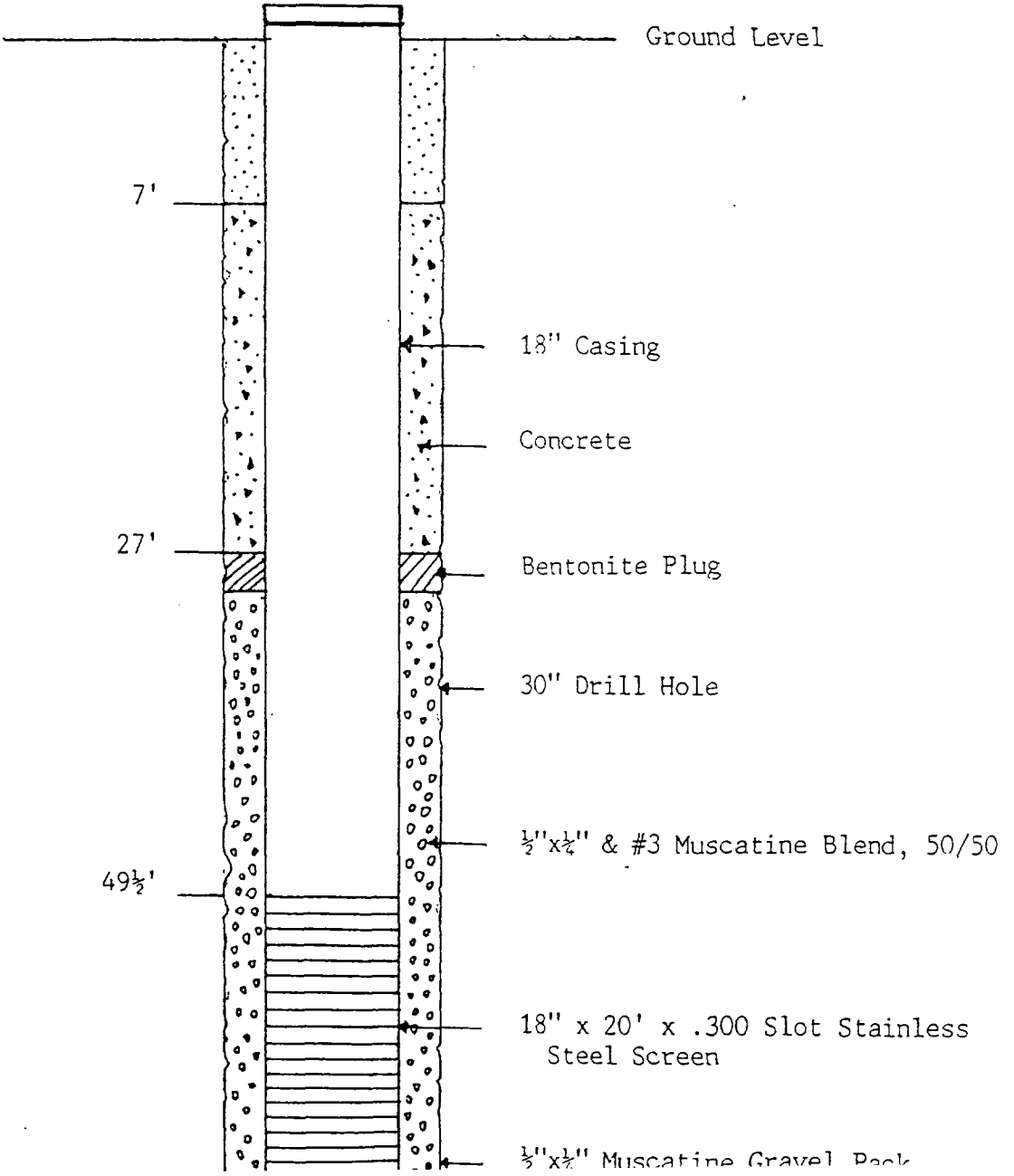
Top Soil	0-6
Dark Brown Sandy Clay	6-23
Gray Clay	23-29
Coarse Yellow Gravel	29-35
Coarse Yellow Gravel w/Rocks	35-40
Limestone Rock [solid]	40-41
Coarse Gravel w/silica #12-25	41-43
#30 Slot to Gravel w/Broken Limestone	43-48
#30 to Gravel Everything Limestone Rocks & Rounded Pebbles of Harder Material	48-72

Additional Comments

ALBRECHT
WELL
DRILLING, INC.

RR #1, OHIO, ILLINOIS 61349

CITY OF LASALLE
WELL NO. 8
September 17 & 18, 1990



REFERENCE 2

IEPA Well Site Survay Reports

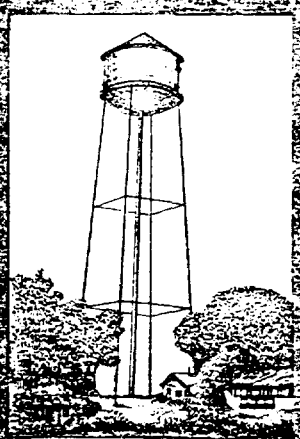
Illinois
Environmental
Protection Agency

Division of Public Water Supplies
2200 Churchill Road
Springfield, Illinois 62706

Groundwater Quality Protection Program

OGLESBY
FACILITY NUMBER 0990700
WELL SITE SURVEY
REPORT

Division of Public Water Supplies



INTRODUCTION

This report has been prepared by the Agency pursuant to Section 17.1 of the Illinois Environmental Protection Act. The report summarizes information about your facility, and samples collected and analyzed from your well(s). The well site survey provides an inventory of the area around your well(s) to help increase your awareness of potential hazards to groundwater utilized by your facility. This information and technical data will assist you in developing and implementing local groundwater protection measures authorized by the Act.

FACILITY DESCRIPTION AND GEOLOGIC PROFILE OF WELL SITES

The City of Oglesby has two public water supply wells. The facility produces 554,000 gallons per day on average to an estimated population of 4,000. The wells are alternated weekly as lead well. See Table I for a description of each well. Both wells utilize a deep bedrock aquifer which is overlain by relatively impermeable bedrock that generally lays within 20 feet of the surface. Permeability is a measure of the ability of a soil or sediment to transmit fluids. A detailed description and geologic profile is found in the Facility Wells Report (Appendix C).

TABLE I

	Min. Set-Back (ft.)	Max. Set-Back (ft.)	Status	Cap. (gpm) (MGD)	Spec. Cap. (gpm/ ft)	Treat-ment	Aquifer	Well Depth (ft)	Well Log Avail
Well No. 3 (11498)	200	No	A	850 1.22	5.2	K-per-manganate filtered	Deep Bedrock	2812	Yes
Well No. 4 (11499)	200	No	A	850 1.22	6.4	Softened phos.,Cl	Deep Bedrock	2795	Yes

GROUNDWATER SAMPLING AND MONITORING HISTORY

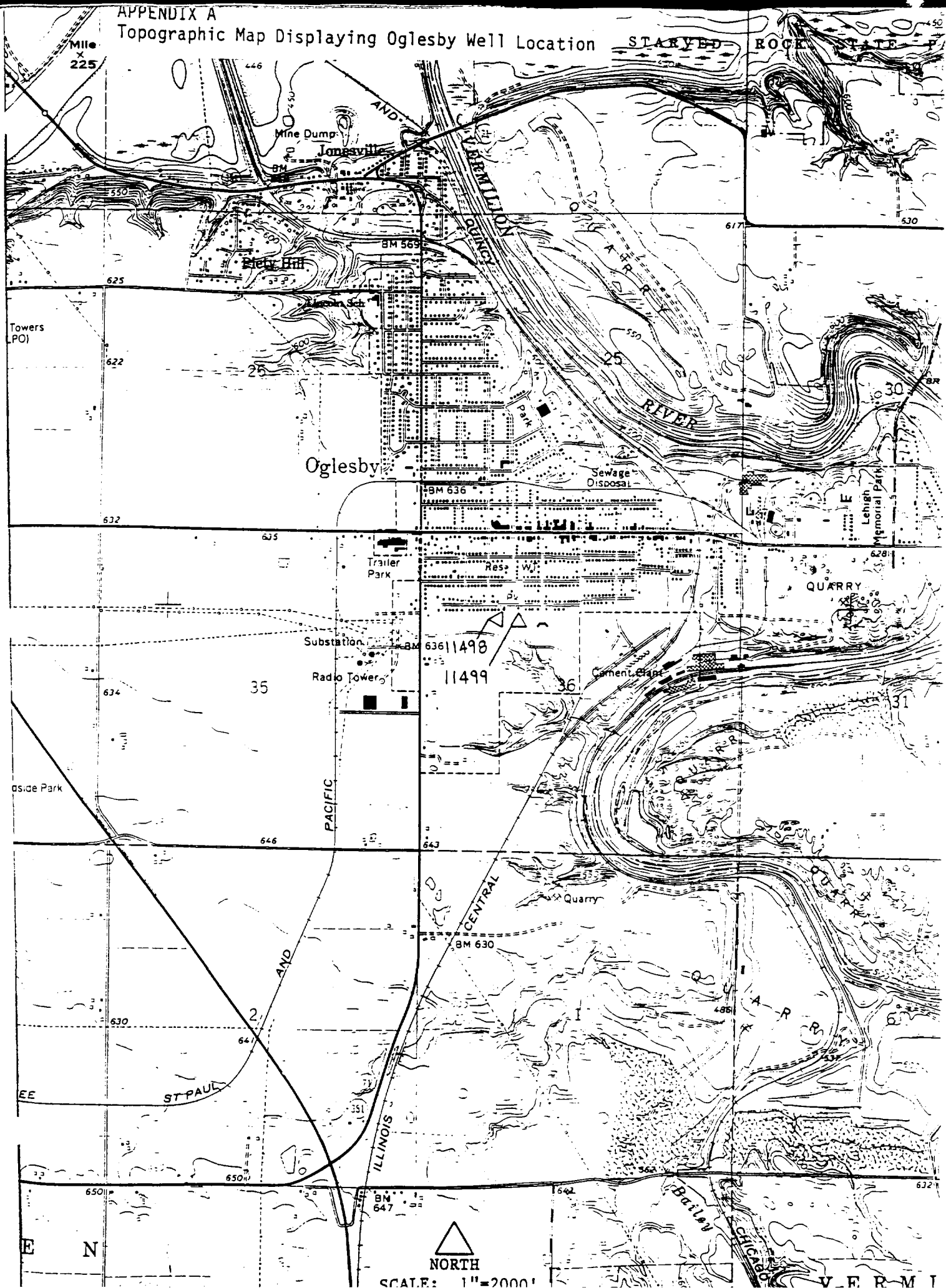
The public water supply wells at Oglesby were sampled as part of the Statewide Groundwater Monitoring Network on April 14, 1987. The well samples were analyzed for volatile organic and aromatic chemicals (VOC/VOA) and inorganic chemicals (IOC). The VOC/VOA analyses performed detected no quantifiable levels of organic chemicals in either well. The IOC analyses performed found the water from both the wells to meet all general use guidelines.

WELL SITE SURVEY METHODS AND PROCEDURES

The detailed well site survey consists of an aerial photographic map and inventory sheets (Appendix B), that relate information about potential sources, routes, and possible problem sites to your water supply wells. The location of potential sources, routes, possible problem sites, water wells minimum setback zones and the 1,000 foot survey area are all displayed on the aerial photographic map.

APPENDIX A

Topographic Map Displaying Oglesby Well Location



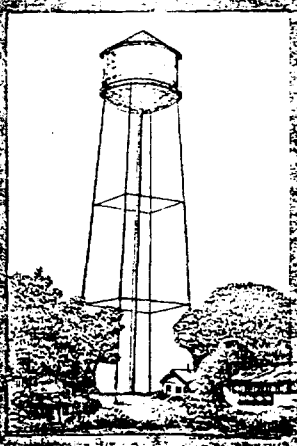
Illinois
Environmental
Protection Agency

Division of Public Water Supplies
2200 Churchill Road
Springfield, Illinois 62706

Groundwater Quality Protection Program

VILLAGE OF NORTH UTICA
FACILITY NUMBER 0990650
WELL SITE SURVEY REPORT

Division of Public Water Supplies



INTRODUCTION

This report has been prepared by the Illinois Environmental Protection Agency (Agency) pursuant to Section 17.1 of the Illinois Environmental Protection Act (Act). The report summarizes information about your facility and samples collected and analyzed from your well(s). The well site survey provides an inventory of the area around the well(s) to help increase your awareness of potential hazards to the groundwater utilized by your facility. This information and technical data will assist you in developing and implementing local groundwater protection measures authorized by the Act.

FACILITY DESCRIPTION AND GEOLOGIC PROFILE OF WELL SITES

The Village of North Utica has two public water supply wells. The facility produces 200,000 gallons per day to an estimated population of 1,070. See Table I for a description of each well. Both wells utilize deep bedrock aquifers which are overlain by permeable alluvial (river) deposits.Permeability is the ability of a soil or sediment to transmit fluids. A detailed description and geologic profile is found in the Facility wells Report (Appendix C).

TABLE 1

Well I.D.	Minimum Setback (Ft.)	Maximum Setback (Ft.)	Status	Capacity (gpm) (MGD)	Specific Capacity (gpm/ft)	Treatment	Aquifer	Well Depth (Ft.)	Well Logs Available
Well #1 (11494)	400	No	A	flowing artesian		Cl., Fl.	Deep Bedrock	618	no
Well #2 (11495)	400	No	A	320 0.46	3.9	Cl., Fl.	Deep Bedrock	1078	yes

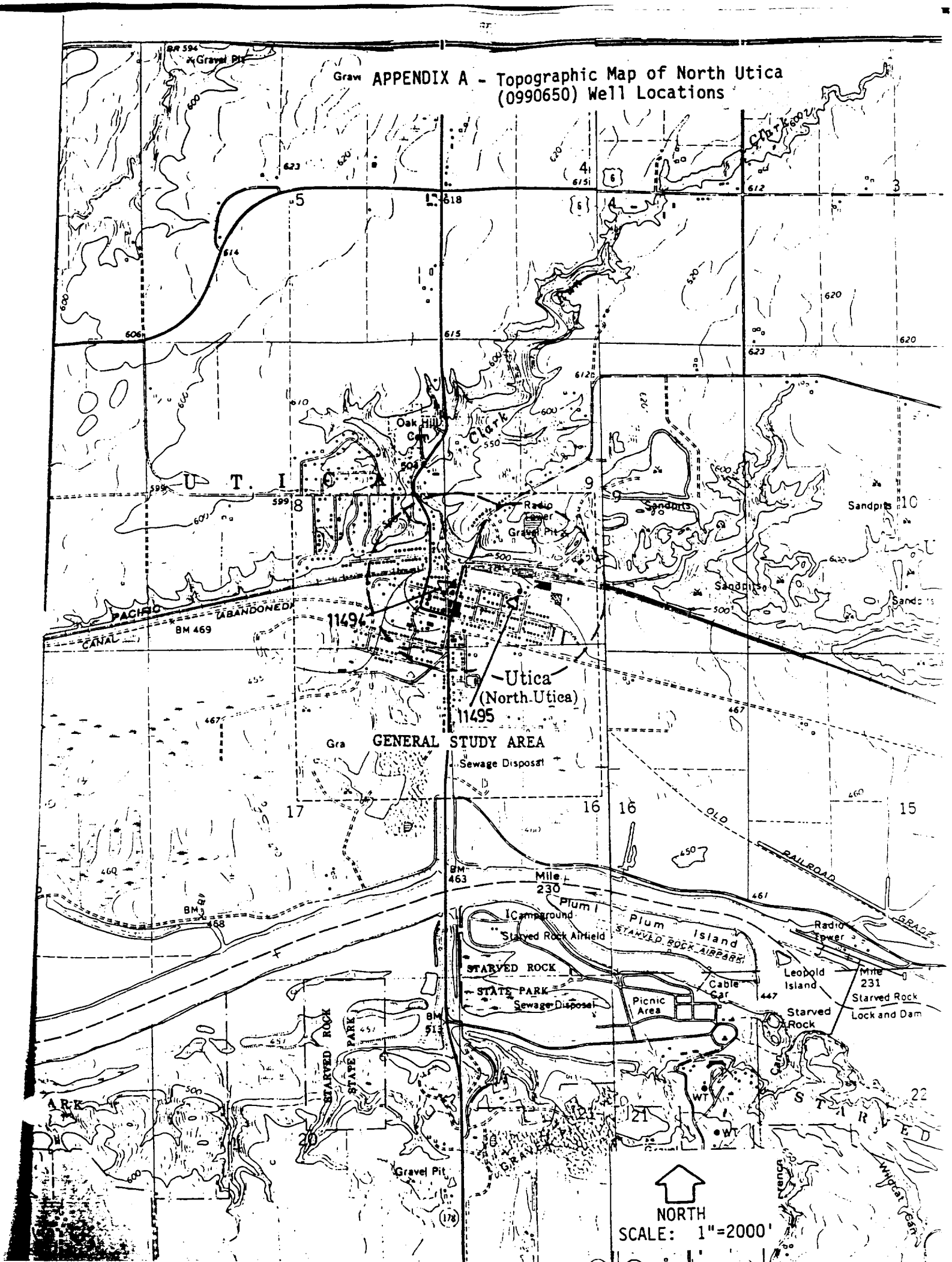
A=Active: I=Inactive

GROUNDWATER SAMPLING/MONITORING HISTORY

The public water supply wells at North Utica were sampled as part of the Statewide Groundwater Monitoring Network on April 7, 1987. The samples were analyzed for volatile aromatic and organic chemicals (VOC/VOA) and inorganic chemicals (IOC). The VOC/VOA analyses performed detected no quantifiable levels of organic chemicals in either well. The IOC analyses performed found the water from both wells to meet all general use guidelines. See Appendix E for detailed sampling results.

SURVEY METHODS AND PROCEDURES

The detailed well site survey consists of an aerial photographic map and inventory sheets (Appendix B), that relate information about potential sources, routes and possible problem sites to your water supply well(s). The location of potential sources, routes, possible problem sites, water supply wells, minimum setback zones, and 1,000 foot survey area are all displayed on the aerial photographic map.


APPENDIX A - Topographic Map of North Utica (0990650) Well Locations
GENERAL STUDY AREA
Utica
(North Utica)
11495
11494
U. T. I. C. A.
Oak Hill Cem.
Clark
Radio Tower
Gravel Pit
Sandpits
PACIFIC CANAL
ABANDONED
BM 469
Sewage Disposal
OLD RAILROAD GRADE
BM 463
Mile 230
Plum Island
Campground
Starved Rock Airfield
STARVED ROCK AIRPARK
STARVED ROCK STATE PARK
Sewage Disposal
Picnic Area
Cable Car
Leopold Island
Mile 231
Starved Rock Lock and Dam
Starved Rock
BM 513
Gravel Pit
NORTH
SCALE: 1"=2000'

REFERENCE 3

Well Logs

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 159 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven _____. Drive Pipe Diam. _____ in. Depth _____ ft.
   c. Drilled X. Finished in Drift _____. In Rock X.
   Tubular X. Gravel Packed _____.
   d. Grout:

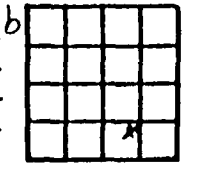
(KIND)	FROM (Ft.)	TO (Ft.)
Puddled Clay	0	68

2. Distance to Nearest:
   Building _____ Ft. Seepage Tile Field _____
   Cess Pool _____ Sewer (non Cast Iron) _____
   Privy _____ Sewer (Cast Iron) _____
   Septic Tank _____ Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Well furnishes water for human consumption? Yes X No____
4. Date well completed February 7, 1983
5. Permanent Pump Installed? Yes____ Date _____ No X
   Manufacturer _____ Type _____ Location _____
   Capacity_____ gpm. Depth of Setting _____ Ft.
6. Well Top Sealed? Yes____ No____ Type _____
7. Pitless Adapter Installed? Yes_____ No_____
   Manufacturer _____ Model Number _____
   How attached to casing? _____
8. Well Disinfected? Yes X No _____
9. Pump and Equipment Disinfected? Yes X No _____
10. Pressure Tank Size_____ gal. Type _____
    Location _____
11. Water Sample Submitted? Yes_____ No_____

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner FOREST LAWN CEMETARY (Cemetary) Well No. 2648M
    Address LaSalle, IL
    Driller S. Dean Albrecht License No. 102-120
11. Permit No. 106063 Date January 20, 1983
12. Water from rock (Formation) 13. County LaSalle
    at depth 120 to 159 ft. Sec. 12, 36
14. Screen: Diam._____ in. Twp. 33N
    Length:_____ ft. Slot_____ Rge. 1E
    Elev. _____



SHOW LOCATION IN SECTION PLAT
NE SW SE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Steel	0	68

16. Size Hole below casing: 5 in. (cemetary)
17. Static level 60 ft. below casing top which is 1½ ft. above ground level. Pumping level _____ ft. when pumping at 25 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
clay	1	1
sandstone St. Pete	11	12
tan limestone	43	55
gray limestone	65	120
gray limestone w/cracks	40	160

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED S. Dean Albrecht DATE 2/23/83
apa

IDPH 4.065
1/74 – KNB-1
(59571—12½M Sets—6-74)

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 118 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven _____. Drive Pipe Diam. _____ in. Depth _____ ft.
   c. Drilled X. Finished in Drift _____. In Rock X.
   Tubular X. Gravel Packed _____.
   d. Grout:

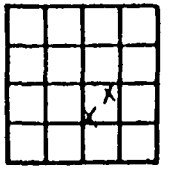
(KIND)	FROM (Ft.)	TO (Ft.)
Puddled Clay	0	53

2. Distance to Nearest:
   Building _____ Ft. Seepage Tile Field _____
   Cess Pool _____ Sewer (non Cast iron) _____
   Privy _____ Sewer (Cast iron) _____
   Septic Tank _____ Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Well furnishes water for human consumption? Yes X No_____
4. Date well completed June 30, 1982
5. Permanent Pump Installed? Yes X Date _____ No_____
   Manufacturer Standard Type subm Location in well
   Capacity 20 gpm. Depth of Setting 80 Ft.
6. Well Top Sealed? Yes X No_____ Type _____
7. Pitless Adapter Installed? Yes X No_____
   Manufacturer Snappy Model Number _____
   How attached to casing? _____
8. Well Disinfected? Yes x No_____
9. Pump and Equipment Disinfected? Yes x No_____
10. Pressure Tank Size _____ gal. Type 250 well-x-trol
    Location in basement
11. Water Sample Submitted? Yes_____ No_____

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner William Katecki Well No. 2599N
    Address LaSalle, Illinois
    Driller S. Dean Albrecht License No. 102-120
11. Permit No. 103802 Date June 17, 1982
12. Water from rock (Formation) 13. County LaSalle
    at depth 80 to 118 ft.
14. Screen: Diam. _____ in.
    Length: _____ ft. Slot _____
    Sec. 12 ¼
    Twp. 33N
    Rge. 1E
    Elev. _____



SHOW LOCATION IN SECTION PLAT
SW NW SE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	PVC	0	53

16. Size Hole below casing: 5 in.
17. Static level _____ ft. below casing top which is 1 ½ ft. above ground level. Pumping level _____ ft. when pumping at 20 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
top soil	3	3
yellow clay	3	6
sand stone	34	40
limestone shale	5	45
limestone	20	65
limestone, shale, sandstone	15	80
limestone	38	118

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED S. Dean Albrecht DATE 8/6/82
Agent

IDPH 4.065
1/74 – KNB-1
(59571—12½M Sets—6-74)

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 150 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven _____. Drive Pipe Diam. _____in. Depth _____ft.
   c. Drilled X. Finished in Drift _____. In Rock _____.
   Tubular _____. Gravel Packed _____.
   d. Grout:

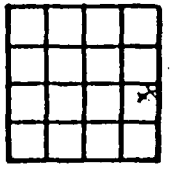
(KIND)	FROM (Ft.)	TO (Ft.)
Puddled Clay	0	88

2. Distance to Nearest:
   Building _____ Ft. Seepage Tile Field _____
   Cess Pool _____ Sewer (non Cast iron) _____
   Privy _____ Sewer (Cast iron) _____
   Septic Tank _____ Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Well furnishes water for human consumption? Yes X No____
4. Date well completed May 27
5. Permanent Pump Installed? Yes X Date _____ No____
   Manufacturer Red Jacket Type Sumb Location In Well
   Capacity 1 hp gpm. Depth of Setting 105 Ft.
6. Well Top Sealed? Yes X No____ Type _____
7. Pitless Adapter Installed? Yes_____ No X
   Manufacturer _____ Model Number _____
   How attached to casing? _____
8. Well Disinfected? Yes X No _____
9. Pump and Equipment Disinfected? Yes_____ No _____
10. Pressure Tank Size_____ gal. Type _____
    Location _____
11. Water Sample Submitted? Yes_____ No _____

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner LaSalle Drive In Well No. 2420
    Address P.O. BOx 465 LaSalle, Il.
    Driller S. Dean Albrecht License No. 102-120
11. Permit No. 93984 Date May 21, 1980
12. Water from Limestone formation 13. County LaSalle
    at depth 10 to 150 ft. Sec. 12 ld
14. Screen: Diam. _____in. Twp. 33N
    Length: _____ft. Slot _____ Rge. 1E
    Elev. _____



SHOW LOCATION IN SECTION PLAT
NENE SE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Steel	0	88

16. Size Hole below casing: 5 in. (commercial operation)
17. Static level 50 ft. below casing top which is 1½ ft. above ground level. Pumping level 120 ft. when pumping at 20 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	5	5
Clay	5	10
Limestone w/streaks of Shale	140	150

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED S. Dean Albrecht DATE June 20, 1980
apa

IDPH 4.065
1/74 – KNB-1
(59571—12½M Sets—6-74)

White Co·
Ill. D — f Public Health
Yellow — Well Contractor
Blue Copy — Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM , STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

1/67

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam.____in. Depth____ft.
   Curb material____. Buried Slab: Yes____No____
   b. Driven____. Drive Pipe Diam. 6 in. Depth 177 ft.
   c. Drilled X. Finished in Drift____. In Rock 325.
   Tubular____. Gravel Packed____.
   d. Grout:

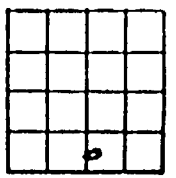
(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 100 Ft. — Seepage Tile Field____
   Cess Pool____ — Sewer (non Cast iron)____
   Privy____ — Sewer (Cast iron)____
   Septic Tank 150 — Barnyard____
   Leaching Pit 200 — Manure Pile____
3. Is water from this well to be used for human consumption?
   Yes X No____
4. Date well completed 5-5-68
5. Permanent Pump Installed? Yes____ No X
   Manufacturer____ Type____
   Capacity____.gpm. Depth of setting____ft.
6. Well Top Sealed? Yes____ No____
7. Pitless Adaptor Installed? Yes____ No____
8. Well Disinfected? Yes____ No____
9. Water Sample Submitted? Yes____ No X

REMARKS: 6" PIPE WAS DRIVEN FROM SURFACE WELL IN TO BED ROCK THE SMALL ANNULAR SPACE WAS FILLED WITH BENTONITE AND CUTTINGS

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

10. Dept. Mines and Minerals permit No. 47218 Year 1968
11. Property owner CLEM JASIEK Well No. 1
    Address TWP 33 N. RA. LA SALLE ILL
    Driller CHAS. E. WOODRUFF CO License No. 92-409
12. Water from SAND STONE Formation 13. County LA SALLE
    at depth 285 to 325 ft. Sec. 2
14. Screen: Diam.____in. Twp. 33 N
    Length:____ft. Slot____ Rng. 1 E
    Elev.____



SHOW LOCATION IN SECTION PLAT
500N 2000W
SE/c NE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
6	T.C. BLK 19#	0	177
5	P.E. " 15#	159	235
	PERFORATED		

16. Size Hole below casing: 5 in.
17. Static level 95 ft. below casing top which is 1 ft. above ground level. Pumping level 105 ft. when pumping at 20 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
~~CLAY~~	5	5
SHALE	105	110
SHALE & LIME SHELLS THIN	60	170
COAL	5	175
SAND ROCK	30	205
LIME	25	230
CLAY	5	235
LIME	50	285
~~SAND STONE~~	40	325
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED W. L. Hamilton DATE 5-18-68

White – Ill. ... of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, BUREAU OF ENVIRONMENTAL HEALTH, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62701. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 105 ft.
   Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. 5 in. Depth 40 ft.
   c. Drilled X. Finished in Drift ____. In Rock X.
   Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

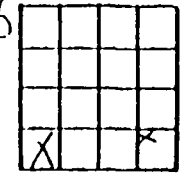
2. Distance to Nearest:
   Building 35 Ft. Seepage Tile Field 75'
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank 50' Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Is water from this well to be used for human consumption?
   Yes X No ____
4. Date well completed 11-26-78
5. Permanent Pump Installed? Yes ____ No X
   Manufacturer ____ Type ____
   Capacity ____ gpm. Depth of setting ____ ft.
6. Well Top Sealed? Yes X No ____
7. Pitless Adaptor Installed? Yes ____ No X
8. Well Disinfected? Yes X No ____
9. Water Sample Submitted? Yes ____ No X

REMARKS:

IDPH 4.065
10-72
1-1

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Tri-County Well + Pump Well No. 1
    Address Rt. 1, La Salle, Ill.
    Driller Charles Tyler License No. 123
11. Permit No. 82006 Date 11-16-78
12. Water from St. Peter Sand (Formation) 13. County La Salle
    at depth 36 to 105 ft. Sec. 11, 26
14. Screen: Diam. ____ in. Twp. 33N
    Length: ____ ft. Slot ____ Rge. 1E
    Elev. ____



SHOW LOCATION IN SECTION PLAT NW SE SE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Schedule 40 PVC	0	40
	1120-NSF 3.871		

16. Size Hole below casing: 5 in.
17. Static level 40 ft. below casing top which is +1 ft. above ground level. Pumping level 45 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Clay	10	10
Limestone	26	36
St Peter Sand	69	105

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Tyler DATE 1-16-80

White Copy - Ill. Dept. Public Health
Yellow - Well Contractor
Blue Copy - Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM , STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

1/67

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ___. Bored ___. Hole Diam. ___ in. Depth ___ ft.
   Curb material ___. Buried Slab: Yes ___ No ___
   b. Driven ___. Drive Pipe Diam. ___ in. Depth ___ ft.
   c. Drilled X. Finished in Drift X. In Rock ___.
   Tubular X. Gravel Packed ___.
   d. Grout:

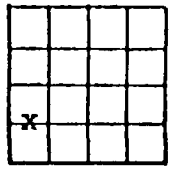
(KIND)	FROM (Ft.)	TO (Ft.)
puddled	0	48

2. Distance to Nearest:
   Building 50 Ft. Seepage Tile Field 75
   Cess Pool nome Sewer (non Cast Iron) 50
   Privy none Sewer (Cast Iron) 15
   Septic Tank 50 Barnyard XXXXX 60
   Leaching Pit none Manure Pile none
3. Is water from this well to be used for human consumption?
   Yes X No ___
4. Date well completed April 22, 1969
5. Permanent Pump Installed? Yes X No ___
   Manufacturer Red Jacket Type Submersible
   Capacity 1/3 gpm. Depth of setting 42 ft.
6. Well Top Sealed? Yes ___ No X
7. Pitless Adaptor Installed? Yes X No ___
8. Well Disinfected? Yes X No ___
9. Water Sample Submitted? Yes ___ No X

REMARKS:

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

10. Dept. Mines and Minerals permit No. ~~HP5925~~ 7571 Year 1969
11. Property owner Geo. Blakely, Jr. Well No. 1009
    Address 1902 Plain St. Peru, Illinois
    Driller S. Dean Albrecht License No. 92-350
12. Water from shale (Formation)
    at depth 47 to 110 ft.
13. County LaSalle
    Sec. 6
    Twp. 33N
    Rng. 1E
    Elev. ___
14. Screen: Diam. 5 in.
    Length: ___ ft. Slot ___



SHOW LOCATION IN SECTION PLAT
75's 60'E NW/c SW S

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	galv	0	48

16. Size Hole below casing: 5 in.
17. Static level 20 ft. below casing top which is 1½ ft. above ground level. Pumping level 110 ft. when pumping at 3 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
yellow clay	11	11
gray clay	4	15
gravel	3	18
gray clay	5	23
dry sand	1	24
gray clay	12	36
dry sand	2	38
clay	1	39
dry gravel	1	40
clay	7	47
gray shale	18	65
soft gray shale	13	78
red shale	32	110
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED S Dean Albrecht C.H. DATE May 23, 1969

Wh...
Ill. Dep... of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 400 ft.
   Curb material_____. Buried Slab: Yes_____ No_____
   b. Driven_____. Drive Pipe Diam._____in. Depth_____ft.
   c. Drilled_____. Finished in Drift_____. In Rock_____.
   Tubular_____. Gravel Packed_____. Shale
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Shale		

2. Distance to Nearest:
   Building_____Ft. Seepage Tile Field_____
   Cess Pool_____ Sewer (non Cast iron)_____
   Privy_____ Sewer (Cast iron)_____
   Septic Tank 75 Barnyard_____
   Leaching Pit_____ Manure Pile_____
3. Well furnishes water for human consumption? Yes____ No____
4. Date well completed 2/1/73 - Dry Hole
5. Permanent Pump Installed? Yes____ Date_____ No____
   Manufacturer_____Type_____Location_____
   Capacity_____gpm. Depth of Setting_____Ft.
6. Well Top Sealed? Yes____ No____ Type_____
7. Pitless Adapter Installed? Yes_____ No_____
   Manufacturer_____Model Number_____
   How attached to casing?_____
8. Well Disinfected? Yes_____ No_____
9. Pump and Equipment Disinfected? Yes_____ No_____
10. Pressure Tank Size_____gal. Type_____
    Location_____
11. Water Sample Submitted? Yes_____ No_____

REMARKS:
Dry Hole

IDPH 4.065
1/74 – KNB-1

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Bob Borontoraki Well No._____
    Address 2205 St Vincents Avenue - Lasalle, Illinois
    Driller L & L Well Drilling License No. 102-231
11. Permit No. 73202 Date 6/22/73
12. Water from Shale (Formation) 13. County LaSalle
    at depth 160 to 400 ft. Sec. 3 1/4
    14. Screen: Diam._____in. Twp. 33N
    Length:_____ft. Slot_____ Rge. 1E
    Elev._____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Plastic	0	162

SHOW LOCATION IN SECTION PLAT
NE NE NE

16. Size Hole below casing: 5 in.
17. Static level_____ft. below casing top which is_____ft. above ground level. Pumping level_____ft. when pumping at_____gpm for_____hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	5	5
Clay	155	160
Shale	240	400

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Lonnie Joe Motherly P.E. DATE 8/23/73

White Copy
Ill. Dept Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL / WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

1/67

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam.____in. Depth____ft.
   Curb material____. Buried Slab: Yes____No____
   b. Driven____. Drive Pipe Diam.____in. Depth____ft.
   c. Drilled X. Finished in Drift X. In Rock____.
   Tubular X. Gravel Packed____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Puddled clay	0	68

2. Distance to Nearest:
   Building 20 Ft. Seepage Tile Field 120
   Cess Pool none Sewer (non Cast iron) none
   Privy none Sewer (Cast iron) 20
   Septic Tank 100 Barnyard none
   Leaching Pit none Manure Pile none
3. Is water from this well to be used for human consumption?
   Yes X No____
4. Date well completed July 17, 1968
5. ...nent Pump Installed? Yes X No____
   ...ker Goulds Type submersible
   ...p____gpm. Depth of setting 42 ft.
   ...? Yes X No____
   ...alled? Yes X No____
   ...s X No____
   Yes____ No X

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

10. Dept. Mines and Minerals ... No. [illegible]4076 Year 1968
11. Property owner John H... [illegible] Well No. 955
    Address 212 13th S... [illegible]
    Driller S. Dean Alb... License No. 82-350
12. Water from Sand & gra... Formation
    at depth 52-56 75 ft. 13. County [illegible]
14. Screen: Diam. 5 in. Sec. 33
    Length 4 ft. Slot____ Twp. 3[illegible]N
    Rng. 1[illegible]
    Elev.____

SHOW LOCATION IN SECTION PLAT

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	galv	0	68

16. Size Hole below casing: 5 in.
17. Static level 18 ft. below casing to, which is 1[illegible] ft. above ground level. Pumping level 20 ft. when pumping at 15 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Fill	5	5
~~Yellow clay~~	5	10
Sand & gravel	25	35
Yellow clay, sand	3	38
~~Rock~~	1	39
Gray clay	13	52
Sand & gravel	23	75
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED [signature] DATE 8 28, 1968

White Copy - Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored X. Hole Diam. 24 in. Depth 44 ft.
   Curb material Concrete Buried Slab: Yes X No ____
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled ____. Finished in Drift ____. In Rock ____.
   Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 40 Ft. Seepage Tile Field 100
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank 100 Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Well furnishes water for human consumption? Yes X No ____
4. Date well completed 9-2-78
5. Permanent Pump Installed? Yes ____ Date ____ No X
   Manufacturer ____ Type ____ Location ____
   Capacity ____ gpm. Depth of Setting ____ Ft.
6. Well Top Sealed? Yes ____ No ____ Type ____
7. Pitless Adapter Installed? Yes X No ____
   Manufacturer BAKER Model Number SPLT6PL?W
   How attached to casing? CLAMPED
8. Well Disinfected? Yes ____ No ____
9. Pump and Equipment Disinfected? Yes ____ No ____
10. Pressure Tank Size ____ gal. Type ____
    Location ____
11. Water Sample Submitted? Yes ____ No X

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner ALBERT SCHALLE Well No. 2
    Address PERU
    Driller ROBERT SCHAFF License No. 092-01445
11. Permit No. 78826 Date 8-31-78
12. Water from GRAVEL (Formation) 13. County LA SALLE
    at depth 35 to 38 ft.
    Sec. 18? Twp. 33N Rge. 1E Elev. ____
14. Screen: Diam. ____ in.
    Length: ____ ft. Slot ____
15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
24	Concrete	12	44

SHOW LOCATION IN SECTION PLAT
SE NW SW

16. Size Hole below casing: ____ in.
17. Static level 18 ft. below casing top which is 1 ft. above ground level. Pumping level ____ ft. when pumping at ____ gpm for ____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
TOP SOIL	1	1
YELLOW CLAY	14	15
SOFT BLUE SHALE	20	35
GRAVEL	3	38
RED SHALE	6	44

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Robert V. Schaff DATE 11-12-78

IDPH 4.065
1/74 – KNB-1

White – Ill. Public Health
Yellow – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM [illegible] STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

1/67

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam.____in. Depth____ft.
   Curb material____. Buried Slab: Yes____No____
   b. Driven X. Drive Pipe Diam. 5" in. Depth 82 ft.
   c. Drilled____. Finished in Drift 95'. In Rock____.
   Tubular____. Gravel Packed____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 20 Ft. Seepage Tile Field____
   Cess Pool____ Sewer (non Cast iron)____
   Privy____ Sewer (Cast iron)____
   Septic Tank 65' Barnyard____
   Leaching Pit____ Manure Pile____
3. Is water from this well to be used for human consumption?
   Yes X No____
4. Date well completed 10-15-68
5. Permanent Pump Installed? Yes____ No X
   Manufacturer____ Type____
   Capacity____gpm. Depth of setting____ft.
6. Well Top Sealed? Yes____ No____
7. Pitless Adaptor Installed? Yes____ No____
8. Well Disinfected? Yes____ No____
9. Water Sample Submitted? Yes____ No X

REMARKS: 5" DRIVE PIPE WAS DRIVEN FROM SURFACE TO 82' THE SMALL ANNULAR SPACE WAS FILLED WITH BENTONITE & CUTTINGS

GEOLOGICAL WATER SURVEYS WATER WELL RECORD

10. Dept. Mines and Minerals permit No. NE5031 Year 1968
11. Property owner Mrs. CARL SPITTSTOESSER Well No.____
    Address OGLESBY ILL
    Driller CHAS. E. WOODRUFF License No. 92-409
12. Water from SAND & GRAVEL Formation 15' County LASALLE
    at depth 85 to 95' ft.
14. Screen: Diam.____in.
    Length:____ft. Slot____
    Sec. 26 NW¼
    Twp. 33-N
    Rng 1-E
    Elev.____

SHOW LOCATION IN SECTION PLAT
SE NW NW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	TAC. BLK 14#	0	82
4	PLE " 11#	75'	95'
	PERFORATED		

16. Size Hole below casing:____in.
17. Static level 55' ft. below casing top which is 1 ft. above ground level. Pumping level 60 ft. when pumping at 10 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
CLAY	25	25'
SAND & GRAVEL	70	95'
(CONTINUE ON SEPARATE SHEET IF NECESSARY)		

SIGNED W. L. Hamilton DATE 11-5-68

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 50 ft.
   Curb material_____. Buried Slab: Yes_____ No_____
   b. Driven_____. Drive Pipe Diam._____ in. Depth_____ ft.
   c. Drilled_____. Finished in Drift_____. In Rock Shale
   Tubular_____. Gravel Packed_____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Cuttings		

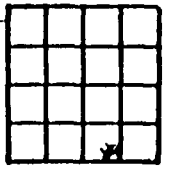
2. Distance to Nearest:
   Building 22 Ft. — Seepage Tile Field_____
   Cess Pool_____ — Sewer (non Cast iron)_____
   Privy_____ — Sewer (Cast iron)_____
   Septic Tank 75 — Barnyard_____
   Leaching Pit_____ — Manure Pile_____
3. Well furnishes water for human consumption? Yes X No____
4. Date well completed 8-13-80
5. Permanent Pump Installed? Yes X Date 9-13-80 No____
   Manufacturer Sta-Rite Type Subm. Location Well
   Capacity 15 gpm. Depth of Setting 38 Ft.
6. Well Top Sealed? Yes X No____ Type Martinson
7. Pitless Adapter Installed? Yes X No____
   Manufacturer Martinson Model Number SP10
   How attached to casing? bolted
8. Well Disinfected? Yes X No____
9. Pump and Equipment Disinfected? Yes X No____
10. Pressure Tank Size 42 gal. Type con aire
    Location basement
11. Water Sample Submitted? Yes_____ No X

REMARKS:

OWNER INSTRUCTED TO TAKE SAMPLE

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner B. J. Strozewski Well No._____
    Address 813 Creve Coeur, La Salle, Il 61301
    Driller Phil Knierim License No. 102 84
11. Permit No. 94659 Date 7-2-80
12. Water from Shale (Formation) at depth 45 to 50 ft.
13. County La Salle
    Sec. 22
    Twp. 33N
    Rge. 1E
    Elev._____
14. Screen: Diam._____ in. Length:_____ ft. Slot_____



SHOW LOCATION IN SECTION PLAT
SE SW SE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Steel	0	43

16. Size Hole below casing: 5 in.
17. Static level 23 ft. below casing top which is 1 ft. above ground level. Pumping level 38 ft. when pumping at 20 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	1	1
Clay	42	43
Rock	2	45
Shale	5	50

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Phil Knierim DATE 9-17-80
le

IDPH 4.065
1/74 – KNB-1

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ✓. Hole Diam. 32 in. Depth 54 ft.
   Curb material Concrete Buried Slab: Yes ____ No ✓
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled ____. Finished in Drift ____. In Rock ____.
   Tubular ____. Gravel Packed Yes.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Concrete	0'	10'

2. Distance to Nearest: New Construction
   Building House - 35 Ft. Seepage Tile Field no
   Cess Pool no Sewer (non Cast iron) no
   Privy no Sewer (Cast iron) no
   Septic Tank no Barnyard no
   Leaching Pit no Manure Pile no
3. Is water from this well to be used for human consumption?
   Yes ✓ No ____
4. Date well completed 7-11-69
5. Permanent Pump Installed? Yes ____ No ____
   Manufacturer ____ Type ____
   Capacity ____ gpm. Depth of setting ____ ft.
6. Well Top Sealed? Yes ✓ No ____
7. Pitless Adaptor Installed? Yes ____ No ____
8. Well Disinfected? Yes ____ No ____
9. Water Sample Submitted? Yes ____ No ____

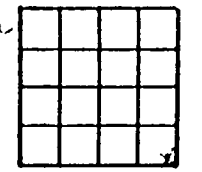
REMARKS:

Do not install Pumps

IDPH 4.065
10/68

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Alfred & Lucille Boeks Well No. ____
    Address RR# Box 27 - Pekin, Ill.
    Driller E. T. HAMPTON License No. 92-185
11. Permit No. NF6008 Date 7-28-69
12. Water from 12 & 22 (Formation) 13. County Tazewell
    at depth ____ to ____ ft.
14. Screen: Diam. ____ in.
    Length: ____ ft. Slot ____
    Sec. 7 1/4
    Twp. 23N
    Rge. 1E
    Elev. ____



SHOW LOCATION IN SECTION PLAT

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
24	Concrete Casing	1	54

16. Size Hole below casing: ____ in.
17. Static level ____ ft. below casing top which is ____ ft. above ground level. Pumping level ____ ft. when pumping at ____ gpm for ____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Black top soil	1'	2'
Yellow boulders	2'	18'
Yellow sand & Water	13'	22'
Blue Clay	22'	54'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Edward T. Hampton DATE 8-9-69

White – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUC TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 32 ft.
   Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled X. Finished in Drift X. In Rock ____.
   Tubular X. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
puddled		
clay	0	28

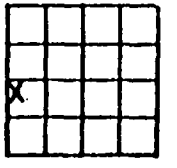
2. Distance to Nearest:
   Building ____ Ft. Seepage Tile Field ____
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank ____ Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Well furnishes water for human consumption? Yes X No ____
4. Date well completed July 21, 1984
5. Permanent Pump Installed? Yes X Date ____ No ____
   Manufacturer R.J. Type subm Location in well
   Capacity 25 gpm. Depth of Setting 21 Ft.
6. Well Top Sealed? Yes X No ____ Type k-type
7. Pitless Adapter Installed? Yes X No ____
   Manufacturer Wells Model Number ____
   How attached to casing? ____
8. Well Disinfected? Yes X No ____
9. Pump and Equipment Disinfected? Yes X No ____
10. Pressure Tank Size ____ gal. Type ____
    Location ____
11. Water Sample Submitted? Yes ____ No ____

REMARKS:

IDPH 4.065
1/74 – KNB-1

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner MELVIN SEIBERT Well No. 2270M
    Address LaSalle, IL
    Driller S. Dean Albrecht License No. 102-120
11. Permit No. ~~112389~~ 142389 Date 5-16-84
12. Water from sand Formation 13. County LaSalle
    at depth 18 to 32 ft. Sec. 3
    14. Screen: Diam. 4 in. Twp. 33N
    Length: 4 ft. Slot 12 Rge. 1E
    Elev. ____



SHOW LOCATION IN SECTION PLAT
NW 1/4 NW 1/4

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
5	PVC	0	28

16. Size Hole below casing: 5 in.
17. Static level 12 ft. below casing top which is 1½ ft. above ground level. Pumping level 29 ft. when pumping at 25 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
brown clay & sand	13	13
gray clay	5	18
sand	1	19
sticky gray clay	10	29
gravel	2	31
shale		

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Ann P Albrecht (gal) DATE 8/24/84

White Copy – Ill. Dept. of Pu : Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS ˜ DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUE .D AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored x . Hole Diam. 32 in. Depth 48 ft.
   Curb material concrete Buried Slab: Yes x No____
   b. Driven____. Drive Pipe Diam.____in. Depth____ft.
   c. Drilled____. Finished in Drift____. In Rock____.
   Tubular____. Gravel Packed____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building – Ft. Seepage Tile Field –
   Cess Pool – Sewer (non Cast iron) –
   Privy – Sewer (Cast iron) –
   Septic Tank – Barnyard –
   Leaching Pit – Manure Pile –
3. Well furnishes water for human consumption? Yes X No____
4. Date well completed 5/2/78
5. Permanent Pump Installed? Yes____ Date____ No X
   Manufacturer____ Type____ Location____
   Capacity____gpm. Depth of Setting____Ft.
6. Well Top Sealed? Yes X No____ Type vented cap
7. Pitless Adapter Installed? Yes X No____
   Manufacturer Baker Model Number 5PLT6P12WM
   How attached to casing? clamp-on
8. Well Disinfected? Yes X No____
9. Pump and Equipment Disinfected? Yes____ No____
10. Pressure Tank Size____gal. Type____
    Location____
11. Water Sample Submitted? Yes____ No X

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Jack Ator Well No.____
    Address 2705 St. Vincent LaSalle, Ill.
    Driller Steven Sauder License No. 92-622
11. Permit No. 73795 Date 5/2/78
12. Water from yellow gravel (Formation) 13. County LaSalle
    at depth 11 to 12 ft.
    Sec. 3
    Twp. 33N
    Rge. 1E
    Elev.____
14. Screen: Diam. – in.
    Length:____ft. Slot____

SHOW LOCATION IN SECTION PLAT
85'N, 300'E SW/c NE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
6	PVC	1	10
24	concrete	10	48

16. Size Hole below casing: --- in.
17. Static level____ft. below casing top which is____ft. above ground level. Pumping level____ft. when pumping at____ gpm for____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
clay- yellow	11	11
gravel- yellow	1	12
clay- gray, green	13	25
shale- red	10	35
shale- gray,white,powdery	13	48

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Steven Sauder DATE 5/5/78

IDPH 4.065
1/74 – KNB-1

Partial

City north of Cedar Point County La Salle

Section 28 Twp. No. 33 N. Range 1 E.

Location (in feet from section corner) 2580' N. & 100' E. of S.W. corner

Owner John Massieon Authority S.G.S. & driller's record

Contractor Daniel L. Schmidt Address Mendota

Date drilled 1939 Elev. above sea level top of well

Depth 83'

Log 15' yellow clay; 20' blue clay; 10' hardpan; 20' blue clay & stones; 15' blue clay & fine clay; 3' sand & gravel

Were drill cuttings saved Where filed

Size hole If reduced, where and how much

Casing record 4" to 80' 8'4" of 1½" Clayton Mark 60 gauge screen

Distance to water when not pumping 60' Distance to water is

feet after pumping at 10 G. P. M. for hours.

Reference point for above measurements

Type of pump Distance to cylinder

Length of cylinder Length of suction pipe below cylinder

Length stroke Speed

Hours used per day Type of power

Rating of motor Rating of pump in G. P. M.

Can following be measured: (1) Static water level

(2) Pumping level (3) Discharge

(4) Influence on other wells

Temperature of water Was water sample collected yes

Date 3/12/40 Effect of water on meters, hot water

coils, etc.

Date of Analysis Analysis No. 87464

Recorder J. L. Gobble

2807-22617 12

Date 3/6/40

White Copy – Ill. Dept. of Pub. Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO [illegible]ERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 41 ft.
   Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled X. Finished in Drift X. In Rock ____.
   Tubular X. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
puddled		
clay	0	34

2. Distance to Nearest:
   Building ____ Ft. Seepage Tile Field ____
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank ____ Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Well furnishes water for human consumption? Yes X No ____
4. Date well completed August 22, 1985
5. Permanent Pump Installed? Yes X Date ____ No ____
   Manufacturer R.J. Type subm Location in well
   Capacity 40 gpm. Depth of Setting 40 Ft.
6. Well Top Sealed? Yes X No ____ Type lead
7. Pitless Adapter Installed? Yes X No ____
   Manufacturer Baker Model Number ____
   How attached to casing? threaded
8. Well Disinfected? Yes X No ____
9. Pump and Equipment Disinfected? Yes X No ____
10. Pressure Tank Size ____ gal. Type ____
    Location ____
11. Water Sample Submitted? Yes ____ No ____

REMARKS: County #23358

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Dan Christiansen

10. Property owner SOUTH BLUFF C.C. Well No. 2871
    Address R.R.#1 Peru, IL
    Driller S. Dean Albrecht License No. 102-120
11. Permit No. 119609 Date August 13, 1985
12. Water from sand Formation at depth 33 to 41 ft.
13. County LaSalle
    Sec. 28 SE Twp. 33N Rge. 1E Elev. ____
14. Screen: Diam. 4 in. Length: 4 ft. Slot 20
15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	steel	0	34

SHOW LOCATION IN SECTION PLAT
SE SE NW
(Commercial operation)

16. Size Hole below casing: 5 in.
17. Static level 12 ft. below casing top which is 1½ ft. above ground level. Pumping level ____ ft. when pumping at 40 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
dirt	4	4
yellow clay	8	12
gray clay	11	33
gravel	8	41

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Owen Rick DATE 9/5/85

IDPH 4.065
1/71 KHD-1

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTI[illegible] TO DRILLERS

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ILLINOIS DEPARTMENT OF PUBLIC HEALTH WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored X. Hole Diam. 24 in. Depth 30 ft.
      Curb material Cement. Buried Slab: Yes X No____
   b. Driven____. Drive Pipe Diam.____in. Depth____ft.
   c. Drilled____. Finished in Drift____. In Rock____.
      Tubular____. Gravel Packed____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building NONE Ft. Seepage Tile Field NONE
   Cess Pool____ Sewer (non Cast iron)____
   Privy____ Sewer (Cast iron)____
   Septic Tank NONE Barnyard____
   Leaching Pit____ Manure Pile____
3. Well furnishes water for human consumption? Yes X No____
4. Date well completed 8-2-82
5. Permanent Pump Installed? Yes____ Date____ No X
   Manufacturer____ Type____ Location____
   Capacity____gpm. Depth of Setting____Ft.
6. Well Top Sealed? Yes____ No____ Type____
7. Pitless Adapter Installed? Yes X No____
   Manufacturer BAKER Model Number BRBSSY
   How attached to casing? NUT & BASKET
8. Well Disinfected? Yes X No____
9. Pump and Equipment Disinfected? Yes____ No____
10. Pressure Tank Size____gal. Type____
    Location____
11. Water Sample Submitted? Yes____ No X

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner LARRY BOYD Well No. 1
    Address RR. PERU
    Driller ROBERT SCHEBF License No. 092-0342
11. Permit No. 104201 Date 7-28-82
12. Water from GRAVEL (Formation) 13. County LA SALLE
    at depth 20 to 21 ft. Sec. 29.3e
14. Screen: Diam.____in. Twp. 33N
    Length:____ft. Slot____ Rge. 1E
    Elev.____

SHOW LOCATION IN SECTION PLAT: SE SW NE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
24	Cement	10	30

16. Size Hole below casing:____in.
17. Static level 16 ft. below casing top which is 1 ft. above ground level. Pumping level____ft. when pumping at____ gpm for____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
YELLOW CLAY	15	15
BLUE CLAY	5	20
GRAVEL	1	21
SHALE	9	30

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE 11-21-82

DPH 4.065
1/74 – KNB-1
(59671—12½M Sets—6-74) [illegible]

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam.____in. Depth____ft.
   Curb material____. Buried Slab: Yes____No____
   b. Driven____. Drive Pipe Diam.____in. Depth____ft.
   c. Drilled X. Finished in Drift X. In Rock____.
   Tubular X. Gravel Packed____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Puddled clay	0	50

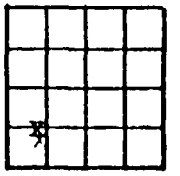
2. Distance to Nearest:
   Building 10 Ft. Seepage Tile Field____
   Cess Pool____ Sewer (non Cast iron)____
   Privy____ Sewer (Cast iron)____
   Septic Tank____ Barnyard____
   Leaching Pit____ Manure Pile____
3. Is water from this well to be used for human consumption?
   Yes X No____
4. Date well completed April 6, 1972
5. Permanent Pump Installed? Yes X No____
   Manufacturer Aermotor Type submersible
   Capacity ½ hp gpm. Depth of setting 42 ft.
6. Well Top Sealed? Yes X No____
7. Pitless Adaptor Installed? Yes X No____
8. Well Disinfected? Yes X No____
9. Water Sample Submitted? Yes____ No X

REMARKS:

IDPH 4.065

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Marquette Cement Co Well No. 1209
    Address Oglesby, Ill.
    Driller S. Dean Albrecht License No. 92-350
11. Permit No. NF 13926 Date March 21, 1972
12. Water from gravel (Formation) 13. County LaSalle
    at depth 34 to 55 ft.
    Sec. 31 T
14. Screen: Diam. 4 in.
    Length: 4 ft. Slot 15
    Twp. 33N
    Rge. E
    Elev.____



SHOW LOCATION IN SECTION PLAT
120'S 450'E
NW/c NE SW SW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
6	steel pipe	0	50

16. Size Hole below casing: 6 in.
17. Static level 13 ft. below casing top which is 1½ ft. above ground level. Pumping level 14 ft. when pumping at 25 gpm for 25 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Fill mix	10	10
Gray clay	24	34
gravel	21	55

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED S. Dean Albrecht DATE August ~, 1972
apa

White Copy - Ill. Dept. Public Health
Yellow Copy - Well Contractor
Blue Copy - Well Owner

INSTRUCTIONS: DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 66½ ft.
   Curb material _____. Buried Slab: Yes____ No____
   b. Driven _____. Drive Pipe Diam. _____ in. Depth _____ ft.
   c. Drilled X. Finished in Drift X. In Rock _____.
   Tubular _____. Gravel Packed _____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
puddled clay	0	62

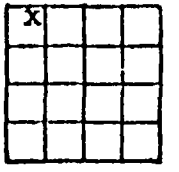
2. Distance to Nearest:
   Building _____ Ft. Seepage Tile Field _____
   Cess Pool _____ Sewer (non Cast iron) _____
   Privy _____ Sewer (Cast iron) _____
   Septic Tank _____ Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Well furnishes water for human consumption? Yes X No____
4. Date well completed August 4, 1977
5. Permanent Pump Installed? Yes____ Date _____ No X
   Manufacturer _____ Type _____ Location _____
   Capacity _____ gpm. Depth of Setting _____ Ft.
6. Well Top Sealed? Yes X No____ Type lead
7. Pitless Adapter Installed? Yes X No____
   Manufacturer Baker Model Number _____
   How attached to casing? clamp-on
8. Well Disinfected? Yes X No____
9. Pump and Equipment Disinfected? Yes X No____
10. Pressure Tank Size _____ gal. Type _____
    Location _____
11. Water Sample Submitted? Yes____ No X

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9.

10. Property owner James Giardano Well No. 1550
    Address Peru, Illinois
    Driller S.D. Albrecht License No. 102-120
11. Permit No. 62983 Date _____
12. Water from gravel (Formation) 13. County LaSalle
    at depth 62½ to 66 ft. Sec. 34
    14. Screen: Diam. 4 in. Twp. 33N
    Length: 4 ft. Slot 25 Rge. 1E
    Elev. _____



SHOW LOCATION IN SECTION PLAT
NE NW NW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	steel pipe	0	62

16. Size Hole below casing: 5 in.
17. Static level 42 ft. below casing top which is _____ ft. above ground level. Pumping level 63 ft. when pumping at 10 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED S.D. Albrecht DATE Oct. 10 1977
Opa

IDPH 4.065
1/74 - KNB-1

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 80 ft.
   Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled x. Finished in Drift ____. In Rock ____.
   Tubular ____. Gravel Packed x.
   d. Grout:

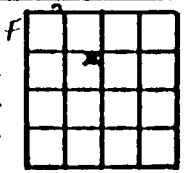
(KIND)	FROM (Ft.)	TO (Ft.)
p-gravel	0	72

2. Distance to Nearest:
   Building ____ Ft. Seepage Tile Field ____
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank ____ Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Well furnishes water for human consumption? Yes X No ____
4. Date well completed May 24, '82
5. Permanent Pump Installed? Yes x Date 6-10-82 No ____
   Manufacturer Goulds Type sub. Location well
   Capacity 10 gpm. Depth of Setting 60 Ft.
6. Well Top Sealed? Yes X No ____ Type capped
7. Pitless Adapter Installed? Yes X No ____
   Manufacturer Williams Model Number ____
   How attached to casing? bolted
8. Well Disinfected? Yes x No ____
9. Pump and Equipment Disinfected? Yes x No ____
10. Pressure Tank Size 80 gal. Type Well-x-trol
    Location Pit
11. Water Sample Submitted? Yes ____ No x

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Harry Pappas Well No. ____
    Address RFD 1 Lynnwood Sub./ Peru, Il.
    Driller Mendota Well & Pump License No. 102-84
11. Permit No. 103396 Date 5-10-82
12. Water from Sand Gravel (Formation) 13. County La Salle
    at depth 66 to 80 ft. Sec. 34.5 F
14. Screen: Diam. 4 in. Twp. 33N
    Length: 8 ft. Slot 12 Rge. 1E
    Elev. ____



SHOW LOCATION IN SECTION PLAT
NE & NW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	# 200 PVC	0	72

16. Size Hole below casing: 4½ in.
17. Static level ____ ft. below casing top which is 1 ft. above ground level. Pumping level ____ ft. when pumping at ____ gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	3	3
Clay	62	65
Sand Gravel	15	80

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED David L. Talley DATE Nov. 19, '82

I. .1 4.065
1/74 – KNB-1
(59871–12)5M Sets–6-74)

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 55 ft.
   Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled X. Finished in Drift X. In Rock ____.
   Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
puddled clay	0	41

2. Distance to Nearest:
   Building ____ Ft. Seepage Tile Field ____
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank ____ Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Well furnishes water for human consumption? Yes X No ____
4. Date well completed December 12, 1977
5. Permanent Pump Installed? Yes X Date ____ No ____
   Manufacturer Goulds Type ½hp. Location in well
   Capacity ____ gpm. Depth of Setting 54 Ft.
6. Well Top Sealed? Yes X No ____ Type Lead
7. Pitless Adapter Installed? Yes X No ____
   Manufacturer Baker Model Number ____
   How attached to casing? clamp on
8. Well Disinfected? Yes X No ____
9. Pump and Equipment Disinfected? Yes X No ____
10. Pressure Tank Size ____ gal. Type ____
    Location ____
11. Water Sample Submitted? Yes ____ No XX

REMARKS:

IDPH 4065
1/74 – KNB-1

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Dale Sell Well No. 2006
    Address LaSalle, Illinois
    Driller S.D. Albrecht License No. 102-120
11. Permit No. 20249 Date ____
12. Water from sand & gravel (Formation) 13. County LASALLE
    at depth 30 to 48 ft. Sec. 34 ¼ XX
14. Screen: Diam. 4 in. Twp. 33N
    Length: 4 ft. Slot 15 Rge. 1E
    Elev. ____

SHOW LOCATION IN SECTION PLAT
SE NW NW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	steel pipe	0	41

16. Size Hole below casing: 5 in.
17. Static level 40 ft. below casing top which is ____ ft. above ground level. Pumping level ____ ft. when pumping at 10 gpm for ½ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
brown clay	20	20
light brown clay	6	26
gray yellow & black clay	4	30
brown sand & gravel	18	48
gray brown sand	2	50
gray clay	1	51
granite	2	53
clay	2	55

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED S D Albrecht vlm DATE Jan 11 1978

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam.____in. Depth____ft.
   Curb material____. Buried Slab: Yes____No____
   b. Driven____. Drive Pipe Diam.____in. Depth____ft.
   c. Drilled x. Finished in Drift x. In Rock____.
   Tubular____. Gravel Packed yes.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
pea gravel	61	72
cuttings	0	61

2. Distance to Nearest:
   Building 84 Ft. — Seepage Tile Field____
   Cess Pool____ — Sewer (non Cast iron)____
   Privy____ — Sewer (Cast iron)____
   Septic Tank 200 — Barnyard____
   Leaching Pit____ — Manure Pile____
3. Well furnishes water for human consumption? Yes x No____
4. Date well completed October 24, 1984
5. Permanent Pump Installed? Yes x Date Oct. 25, 1984 No____
   Manufacturer Red Jacket Type Sub Location Well
   Capacity 10 gpm. Depth of Setting 65 Ft.
6. Well Top Sealed? Yes x No____ Type capped
7. Pitless Adapter Installed? Yes x No____
   Manufacturer Williams Model Number B 50 ACV
   How attached to casing? Bolted
8. Well Disinfected? Yes xx No____
9. Pump and Equipment Disinfected? Yes x No____
10. Pressure Tank Size____gal. Type owners
    Location basement
11. Water Sample Submitted? Yes____ No x

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

ROBERT MOSS

10. Property owner Robert Hosbach Well No.____
    Address R.F.D., Oglesby, Illinois 61348
    Driller David F. Tolley License No. 102-002953
11. Permit No. 115266 Date October 11, 1984
12. Water from sand & gravel (Formation)
    at depth 64 to 71 ft.
13. County La Salle
    Sec. 35.86
    Twp. 33N
    Rge. 1E
    Elev.____
14. Screen: Diam. 5 in.
    Length: 4 ft. Slot 10

SHOW LOCATION IN SECTION PLAT
NW SW SW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	SDR 21 PVC	0	77

16. Size Hole below casing: 5 in.
17. Static level 20 ft. below casing top which is 1 ft. above ground level. Pumping level 47 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
top soil	2	2
clay	62	64
sand and gravel	7	71
shale	1	72

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGN David F. Tolley DATE Oct. 29, 1984

IDPH 4.065

2

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 38½ ft.
   Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled X. Finished in Drift X. In Rock ____.
   Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
puddled		
clay	0	35

2. Distance to Nearest:
   Building ____ Ft. Seepage Tile Field ____
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank ____ Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Well furnishes water for human consumption? Yes X No ____
4. Date well completed July 20, 1976
5. Permanent Pump Installed? Yes X Date ____ No ____
   Manufacturer Red Jacket Type sub Location well
   Capacity ½ hp gpm. Depth of Setting 37 Ft.
6. Well Top Sealed? Yes X No ____ Type lead
7. Pitless Adapter Installed? Yes ____ No X
   Manufacturer ____ Model Number ____
   How attached to casing? ____
8. Well Disinfected? Yes X No ____
9. Pump and Equipment Disinfected? Yes X No ____
10. Pressure Tank Size ____ gal. Type ____
    Location ____
11. Water Sample Submitted? Yes ____ No X

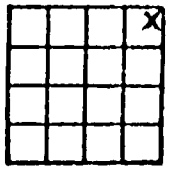
REMARKS:

sand	½	25½
red clay	3½	29
gravel	1½	30½
gray clay	5	35½
gravel	3	38½

IDPH 4.065
1/74 – KNB-1

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Pat Malone Well No. ____
    Address LaSalle, Illinois
    Driller S. Dean Albrecht License No. 102-120
11. Permit No. 48977 Date June 25, 1976
12. Water from gravel (Formation) 13. County LaSalle
    at depth 35½ to 38½ ft. Sec. 6-16
14. Screen: Diam. 5 in. Twp. 33N
    Length: 3½ ft. Slot 4 Rge. 1E
    Elev. ____



SHOW LOCATION IN SECTION PLAT
NE NE NE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	steel pipe	0	35

16. Size Hole below casing: 5 in.
17. Static level 8 ft. below casing top which is 1½ ft. above ground level. Pumping level 30 ft. when pumping at 10 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
top soil	5	5
yellow gravel	1	6
yellow clay	3	9
yellow gravel	1	10
gray clay	3½	13½
gravel	1½	15
gray clay	1	16
redish clay	7	23
gray clay	2	25

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [illegible] DATE 6-25-76

Copy –
...t. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 159 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven _____. Drive Pipe Diam. _____ in. Depth _____ ft.
   c. Drilled X. Finished in Drift _____. In Rock X.
   Tubular X. Gravel Packed _____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Puddled		
Clay	0	68

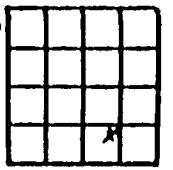
2. Distance to Nearest:
   Building _____ Ft. Seepage Tile Field _____
   Cess Pool _____ Sewer (non Cast iron) _____
   Privy _____ Sewer (Cast iron) _____
   Septic Tank _____ Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Well furnishes water for human consumption? Yes X No____
4. Date well completed February 7, 1983
5. Permanent Pump Installed? Yes___ Date _____ No X
   Manufacturer _____ Type _____ Location _____
   Capacity_____ gpm. Depth of Setting _____ Ft.
6. Well Top Sealed? Yes____ No____ Type _____
7. Pitless Adapter Installed? Yes_____ No_____
   Manufacturer _____ Model Number _____
   How attached to casing? _____
8. Well Disinfected? Yes X No _____
9. Pump and Equipment Disinfected? Yes X No _____
10. Pressure Tank Size_____ gal. Type _____
    Location _____
11. Water Sample Submitted? Yes_____ No_____

REMARKS:

IDPH 4.065
1/74 – KNB-1
59571—12½M Sets—6-74)

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner FOREST LAWN CEMETARY (Cemetary) Well No. 2648M
    Address LaSalle, IL
    Driller S. Dean Albrecht License No. 102-120
11. Permit No. 106063 Date January 20, 1983
12. Water from rock (Formation) 13. County LaSalle
    at depth 120 to 159 ft. Sec. 12.36
    14. Screen: Diam._____ in. Twp. 33N
    Length:____ ft. Slot_____ Rge. 1E
    Elev. _____



SHOW LOCATION IN SECTION PLAT
NE SW SE

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Steel	0	68

16. Size Hole below casing: 5 in. (cemetary)
17. Static level 60 ft. below casing top which is 1½ ft. above ground level. Pumping level _____ ft. when pumping at 25 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
clay	1	1
sandstone St. Pete	11	12
tan limestone	43	55
gray limestone	65	120
gray limestone w/cracks	40	160

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED S. Dean Albrecht DATE 3/23/83
apa

Copy –
Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 150 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven_____. Drive Pipe Diam._____in. Depth_____ft.
   c. Drilled X. Finished in Drift_____. In Rock_____.
   Tubular_____. Gravel Packed_____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Puddled Clay	0	88

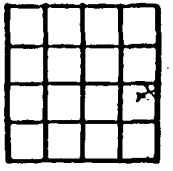
2. Distance to Nearest:
   Building _____ Ft. Seepage Tile Field _____
   Cess Pool _____ Sewer (non Cast iron) _____
   Privy _____ Sewer (Cast iron) _____
   Septic Tank _____ Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Well furnishes water for human consumption? Yes X No_____
4. Date well completed May 27
5. Permanent Pump Installed? Yes X Date _____ No_____
   Manufacturer Red Jacket Type Sumb Location In Well
   Capacity 1 hp gpm. Depth of Setting 105 Ft.
6. Well Top Sealed? Yes X No_____ Type _____
7. Pitless Adapter Installed? Yes_____ No X
   Manufacturer _____ Model Number _____
   How attached to casing? _____
8. Well Disinfected? Yes X No_____
9. Pump and Equipment Disinfected? Yes_____ No_____
10. Pressure Tank Size_____gal. Type _____
    Location _____
11. Water Sample Submitted? Yes_____ No_____

REMARKS:

IDPH 4.065
1/74 – KNB-1
(59571—12½M Sets—6-74)

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner LaSalle Drive In Well No. 2420
    Address P.O. BOx 465 LaSalle, Il.
    Driller S. Dean Albrecht License No. 102-120
11. Permit No. 93984 Date May 21, 1980
12. Water from Limestone Formation 13. County LaSalle
    at depth 10 to 150 ft. Sec. 12 d
14. Screen: Diam._____in. Twp. 33N
    Length:_____ft. Slot_____ Rge. 1E
    Elev._____



SHOW LOCATION IN SECTION PLAT
NE NE SE

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Steel	0	88

16. Size Hole below casing: 5 in. (commercial operation)
17. Static level 50 ft. below casing top which is 1½ ft. above ground level. Pumping level 120 ft. when pumping at 20 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	5	5
Clay	5	10
Limestone w/streaks of Shale	140	150

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED S. Dean Albrecht DATE June 20, 1980
apa

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS T LERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored X. Hole Diam. 24 in. Depth 31 ft.
   Curb material Concrete. Buried Slab: Yes X No ____
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled ____. Finished in Drift ____. In Rock ____.
   Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 20 Ft. Seepage Tile Field 95
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank 84 Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Well furnishes water for human consumption? Yes X No ____
4. Date well completed 11-7-86
5. Permanent Pump Installed? Yes X Date 11-11-86 No ____
   Manufacturer FAIT Type SUB Location WELL
   Capacity 10 gpm. Depth of Setting 28 Ft.
6. Well Top Sealed? Yes ____ No ____ Type ____
7. Pitless Adapter Installed? Yes X No ____
   Manufacturer BUTLER Model Number BRASS
   How attached to casing? INST GASKET
8. Well Disinfected? Yes X No ____
9. Pump and Equipment Disinfected? Yes X No ____
10. Pressure Tank Size 42 gal. Type CAPTIVE AIR
    Location BASE
11. Water Sample Submitted? Yes X No ____

REMARKS:
County #23395

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner STANLEY MROWICKI Well No. 2
    Address R007 PULASKI PLACE
    Driller ROBERT SCHERF License No. 092-003425
11. Permit No. 121820 Date 10-30-85
12. Water from GRAVEL Formation 13. County ~~LaSalle~~ La Salle
    at depth 15 to 20 ft. Sec. 9
    14. Screen: Diam. ____ in. Twp. 33N
    Length: ____ ft. Slot ____ Rge. 1E
    Elev. ____

SHOW LOCATION IN SECTION PLAT
SE SW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
24	Cement	10	31

16. Size Hole below casing: ____ in.
17. Static level 4 ft. below casing top which is 1 ft. above ground level. Pumping level ____ ft. when pumping at ____ gpm for ____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
TOP SOIL	1	1
YELLOW CLAY	14	15
GRAVEL	5	20
SHALE	11	31

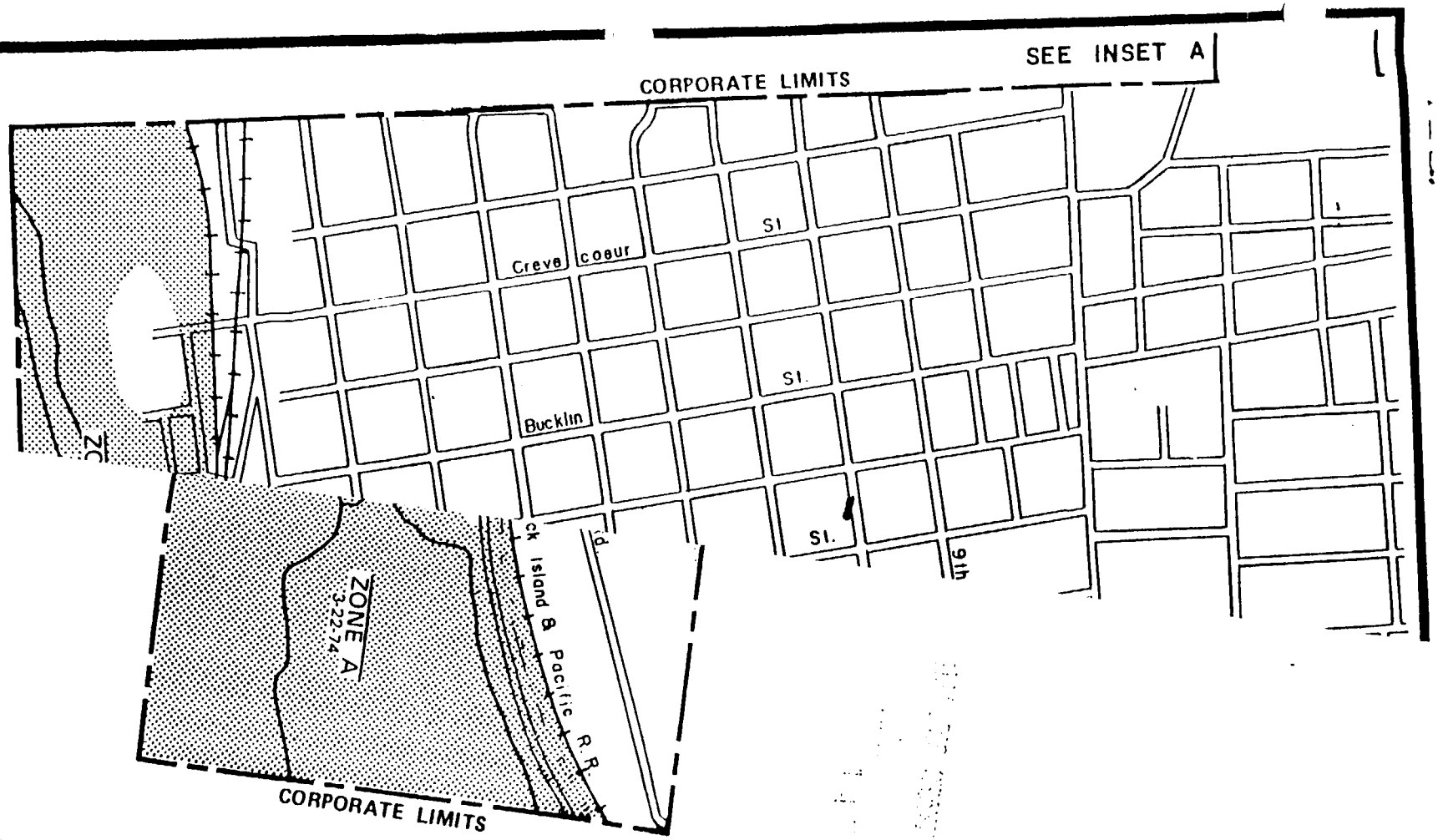
(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SUBMITTED [signature] DATE 1-5-86

IDPH 4.065
1/74 – KNB-1

REFERENCE 4

FIA Flood Boundary Map



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

CITY OF LASALLE, IL
(LA SALLE CO.)

500 0 1000 2000 3000 FEET
APPROXIMATE SCALE

FIA FLOOD HAZARD BOUNDARY MAP
No. H 02

Map Revised
MARCH 19, 1976

REFERENCE 5

IDOC Review of Sensitive Environments

Illinois Department of Conservation
LINCOLN TOWER PLAZA • 524 SOUTH SECOND STREET • SPRINGFIELD 62701-1787 CHICAGO OFFICE • ROOM 4-300 • 100 WEST RANDOLPH • CHICAGO 60601
Brent Manning, Director John W. Comerio, Deputy Director Bruce F. Clay, Assistant Director

August 9, 1993

Mr. Robert Casper
LPC/IEPA
P.O. Box 19276
Springfield, IL 62794-9276

Re: ILD #022254080
Zinco, Inc.
LaSalle, IL

Dear Mr. Casper:

In response to your July 20, 1993 request the Department has reviewed the proposed CERCLIS site in LaSalle County.

There are no sensitive resources (form attached) on-site or in the 0-1/4 or 1/4-1/2 mile radius of the site. Two sensitive areas, the LaSalle East Geological Area and the endangered River Otter occur in the 1/2-1 mile radius (see attached map).

The Lake DePue Fish and Wildlife Area is located at the lower end of the waterpath. The Spring Lake Heron Colony which provides breeding habitat for the state endangered Great Egret is also located in the downstream area of the waterpath (see map).

Thank you for the opportunity to comment.

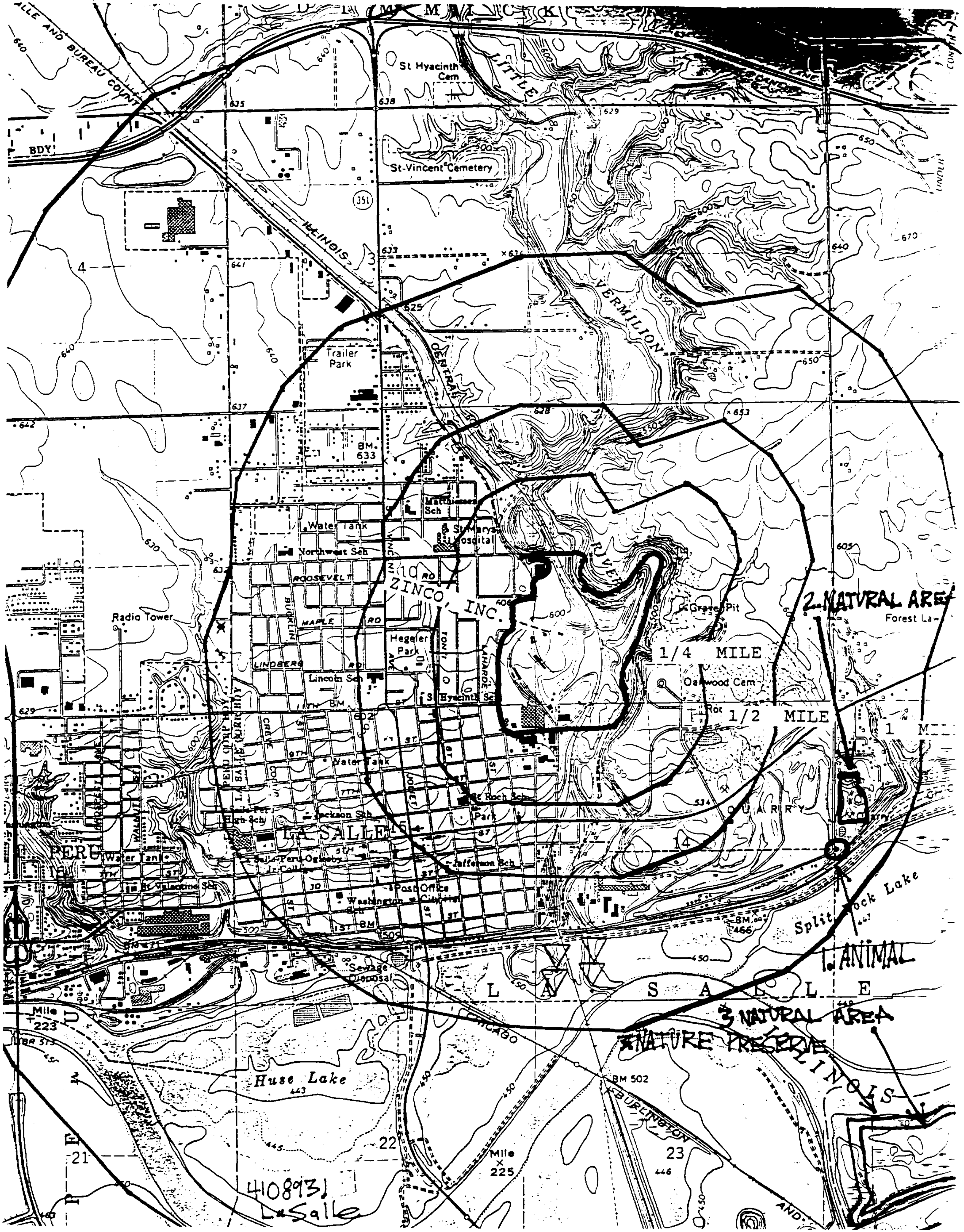
Sincerely,

Richard W. Lutz

Richard W. Lutz
Acting Chief
Division of Impact Analysis

RWL:mcp

attachment: sensitive areas form
map



ZINCO INC.
1/4 MILE
1/2 MILE
1 M
2. NATURAL AREA
1. ANIMAL
3 NATURAL AREA
NATURE PRESERVE
St Hyacinth Cem
St-Vincent Cemetery
ILLINOIS
VERMILION
RIVER
LITTLE
Trailer Park
Water Tank
Northwest Sch
Matthiessen Sch
St Marys Hospital
ROOSEVELT
MAPLE
LINDBERG
Radio Tower
Hegeler Park
Lincoln Sch
St Hyacinth Sch
Gravel Pit
Oakwood Cem
St Roch Sch
Park
Jackson Sch
LA SALLE
PERU
Jefferson Sch
Post Office
Washington Sch
City Hall
Sewage Disposal
QUARRY
Split Rock Lake
L A S A L L E
Huse Lake
CHICAGO
BURLINGTON
BM 502
BM 633
BM 466
Mile 223
Mile 225
BDY
4
21
22
23
410893
LaSalle

DEPARTMENT OF CONSERVATION IDENTIFICATION OF ENVIRONMENTAL SENSITIVE AREAS

ILD# 022254080

— = None known in LWDA

TARGET DISTANCE CATEGORIES

SENSITIVE ENVIRONMENTS	On-site	0-1/4 mile	1/4-1/2 mile	stream milage
I. Critical habitat for Federally designated or proposed endangered or threatened species	—	—	—	—
II. Habitat known to be used by Federally designated or proposed endangered or threatened species	—	—	—	—
III. State wildlife refuge	—	—	—	—
IV. Spawning areas critical for the maintenance of fish/ shellfish species within a river system	—	—	—	—
V. Terrestrial areas utilized by large or dense aggregations of verbebrate animals for breeding	—	—	—	—
VI. Habitat known to be used by State designated or threatened species	—	—	—	—
VII. Habitat known to be used by a species under review as to its Federal endangered or threatened status	—	—	—	—
VIII. State lands designated for wildlife or game management	—	—	—	Lake DuRue Fish and Wildlife Area
IX. State designated natural area	—	—	—	—
X. Particular areas, relatively small in size, important to the maintenance of unique biotic communities	—	—	—	—

If any of the sensitive areas identified above exist within the designated target distance limits, please post an asterisk (*) in the appropriate column.

REFERENCE 6

IEPA CERCLA Reconnaiassance Visits
(In report)

9

Zinc Comes to LaSalle and Peru: A Historical Geography of the Matthiessen and Hegeler Zinc Company and the Midwestern Zinc Industry

MICHAEL LENZI

The story of zinc in LaSalle and Peru, Illinois, owes everything to two German immigrant industrialists, Friedrich W. Matthiessen and Edward C. Hegeler. These two partners designed and created a zinc company from scratchthat up until the latter part of our century occupied a key position in the United States industry as a whole. This study is concerned primarily with the zinc business of these two friends, but it will set their story within the broader historical and geographical context of this type of manufacturing. When discussing any enterprise that depends heavily on natural resources and technology, one must attempt to understand its place and significance within both its immediate area and the larger regional and national network of which it is a part.

This study opens with personal sketches of both partners, discusses their decision to come to America, and then chronicles their movement from Bethlehem in Pennsylvania to LaSalle. Because they came to America without a firm destination, the circumstances leading to their choice of LaSalle merits close examination. Following this, attention will be given to the growth and expansion of the Matthiessen and Hegeler Zinc Works (hereafter abbreviated "M&H") and its impact on zinc manufacturing in the twin cities of LaSalle and Peru. Finally, the study will locate production of zinc in LaSalle and Peru in relation to the changing technological and transportation features of the midwestern zinc market and the essay concludes with a general statement on the further growth of the industry after 1910.[1]

Immigration and Settlement

German immigration to America in the late 1840s and early 1850s was substantial. In fact, since the 1848 revolution a large number of Germans emigrated to seek a freer political and economic life in the United States. It is safe to assume that Frederick W. Matthiessen and Edward Hegeler however were not necessarily fleeing Germany for political reasons when they exited

[1] I have chosen this arbitrary date because it marks the approximate beginning of a new phase of productivity within the industry, i.e. for M&H as well as many western zinc miners and manufacturers.

1856. Rather, their emigration was planned well in advance of their exit by Hegeler's ther, who had spent time a number of years earlier in New York where he had served as a nsul.[2] This move was from the outset a joint business venture. Having recently graduated from e Freiberg Mining Academy in Saxony, Matthiessen and Hegeler had reason to assume that eir professional training would give them a distinct advantage. The United States zinc dustry was still in its infancy in the 1850s and suffered from a conspicous lack of trained and ualified metallurgists and mining engineers.[3] As Matthiessen stated later in a letter to Hege-r, "If we have it [capital], all of America is available to us." [4]

Prior to their out-migration from Germany, the two partners had studied the European zinc dustry. They travelled to England, Belgium, and sites within Germany to assess the techno-gical and financial aspects of the zinc business. This drive to travel and remain informed on dustrial practices was to be characteristic throughout their careers. Although the particulars their journey and arrival in America are vague, it is obvious from correspondence between em that they wasted no time. Once in America, they initiated the search for a manufacturing cation. While it is apparent from Matthiessen's letters to Hegeler in 1857 that the two were imarily interested in the zinc business, they also cultivated an interest in iron, coal and the nc exporting business. The story of their travel around the East and Midwest illustrates the ntrality of capital and location to their decision-making process.

The founding and blossoming of the M&H Zinc company in LaSalle, Illinois can be recon-ucted in outline from the letters of Matthiessen to Hegeler between June 10, 1857 and May 27, 60, as the two men moved from place to place organizing their business. For roughly their first ar in America, the partners were on the road. Their first stop was at Bethlehem, Pennsyl-nia, site of the Pennsylvania & Lehigh Zinc Company, which was owned by three German etallurgists (Ueberoth, Hartman and Saucon). Matthiessen and Hegeler rented a vacant plant d made some progress in smelting, but ultimately decided to search for a better location. ıfavorable contract negotiation and too little capital were perhaps the impetus.[5] From there ıtthiessen left Hegeler and travelled to Brady's Bend, Pennsylvania, where he began an tensive three month investigation of the iron industry. He focused his attention on the pud-ng process, an early method of smelting pig iron into iron concentrate. To gain a broader derstanding of the iron industry he travelled frequently to other mills in Pennsylvania, ɔecially those in Pittsburgh located along the Ohio River. As Matthiessen wrote, "I like it in iron business and believe there are good prospects."[6] He was particularly interested in the

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latthiessen & Hegeler Zinc Company, *1858-1958, Our First Century of Service*, LaSalle, Ill.: The Com-y, 1958.

/alter R. Ingalls, *Lead and Zinc in the United States*, New York: McGraw-Hill, 1908, p. 318.

lattiessen & Hegler Zinc Company Records, Series VII, Subseries A, Box 53, Folder 8, Northern Illinois versity Regional Archives, Dekalb, Ill., p. 9.

id., p. 5.

id., p. 3.

Pittsburgh area with its proximity to large supplies of coal, iron ore, and cheap transport offered by the Monongahela, Ohio and Allegheny rivers and numerous railroads.[7]

From the summer of 1858 onward, however, Matthiessen focused almost exclusively on the zinc industry. He sent a large number of letters from southwestern Wisconsin (a zinc- and lead-rich area that also just reached into extreme northwestern Illinois and eastern Iowa, see Fig. 1).[8] Meanwhile, Hegeler had journeyed to LaSalle, at the junction of the new Illinois & Michigan Canal and the Illinois River, where he busily established contacts and investigated the coal industry. It is worth noting that Hegeler at first was interested in investing capital in the coal business in LaSalle, but was subsequently dissuaded from this by Matthiessen.[9] "We have to have capital and have to give up either the coal or zinc business."[10] Capital was scarce and Matthiessen was interested in one of two strategies: investing in zinc land and factory construction somewhere in Galena (Ill.), Shullsburg (Wis.), Mineral Point (Wis.), or down the Mississippi River in St. Louis; or investing in a zinc ore exporting venture to Europe.[11]

Setting up business in the Wisconsin region was more attractive than St. Louis (which is located in what may be designated the Missouri & Kansas region, see Fig. 1). Southwest Wisconsin was accessible by the Illinois Central Railroad as well as the Mississippi River. Although transportation to and from St. Louis was cheap, it was closed during the winter months due to the condition of the river. Additionally, the foundry site utilized waterpower but was inoperable in the summer because the falls were only 20 inches deep.[12]

On the other hand, the transatlantic zinc trade required too much capital to make an easy profit. Matthiessen provides a decent accounting of this in his letters. Setting up a foundry required an investment of $7,000 for 4 ovens and would reap a yearly profit of $8,000. On the other hand, zinc export would cost the same initial amount, yet would require the shipment of 3 to 4 thousand tons of ore a year to make the same profit.[13]

At this point, Matthiessen and Hegeler considered locating in LaSalle more seriously. As Matthiessen noted, putting "the foundry in LaSalle is preferred as we cannot have the mines in

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[7] Ibid., p. 7.

[8] This mineral region had first developed back in the 1820s on the basis of lead mining, but lead production peaked in 1844 and declined markedly during the 1850s. At the same time it was realized that the tailings from this activity were rich in zinc, so zinc gave second wind to mining in the region. Mathiessen came scouting for zinc ore in Wisconsin at just the right time. For an introduction to the region's mining past, see C. M. Sanford, "The Wisconsin Lead and Zinc District," *Journal of Geography*, vol. 9, 3 (1910), pp. 74–76; and Selma L. Schubring, "A Statistical Study of Lead and Zinc Mining in Wisconsin," *Transactions of the Wisconsin Academy of Arts, Science, and Letters*, vol. 22 (1926), pp. 9–98.

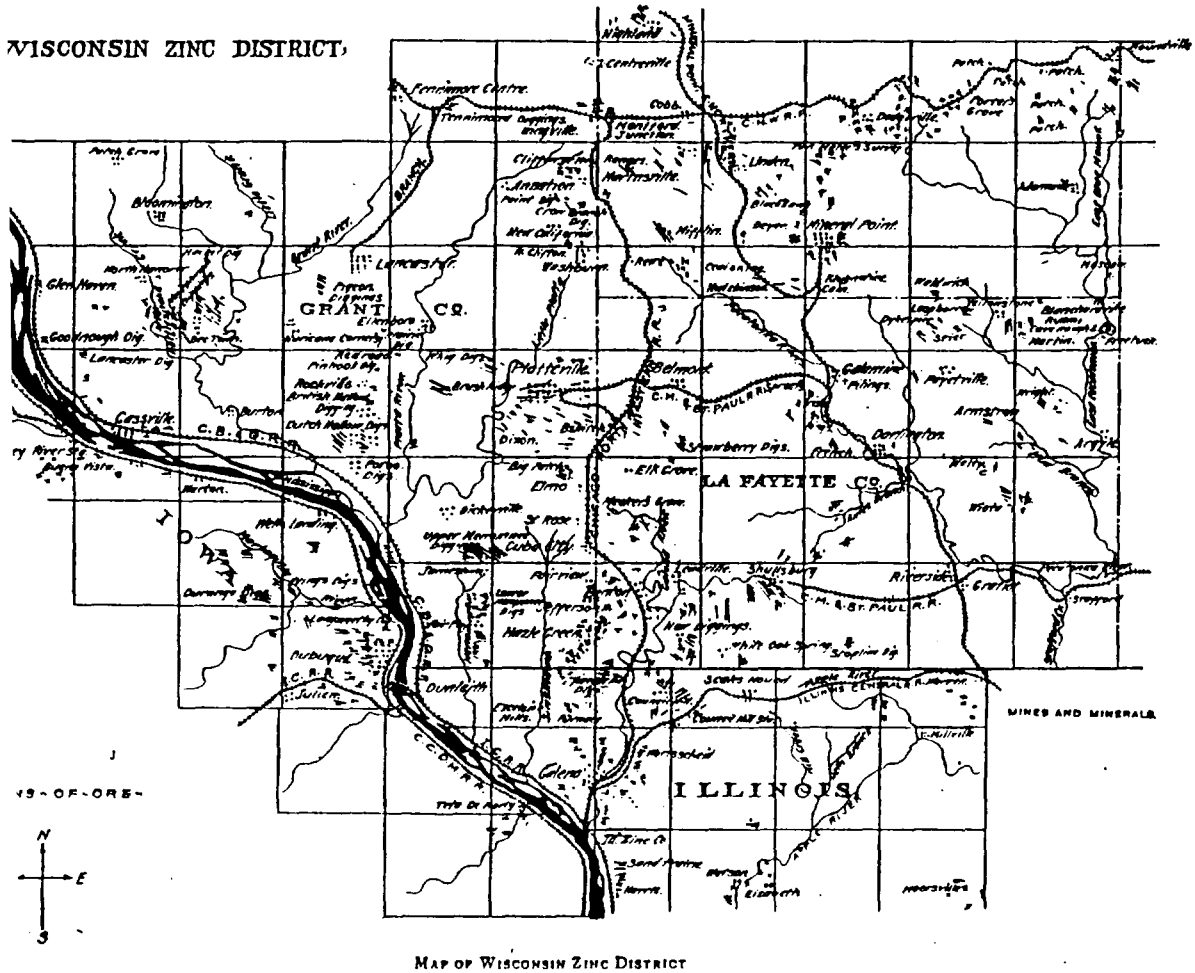
[9] Mattiessen & Hegler Zinc Company Records, Series VII, Subseries A, Box 53, Folder 8, Northern Illinois University Regional Archives, Dekalb, Ill., p. 9.

[10] Ibid., p. 11.

[11] Ibid., p. 12.

[12] Ibid., p. 11.

[13] Ibid., p. 14.



MAP OF WISCONSIN ZINC DISTRICT

ure 1. Map showing the location of Wisconsin region zinc mines in 1906. epresents the approximate distribution of mines in the 19th century (Source: . Wheeler, "The Wisconsin Zinc District," *Mines and Minerals*. vol. 26, no. 8, March 1906, p. 368).

Missouri and Wisconsin and the foundry in St. Louis."[14] LaSalle had the singular virtue of being the closest point with coal resources accessible to the Wisconsin zinc ores by railroad—the Illinois Central Railroad, which ran south from Galena. LaSalle's centrality was further enhanced by its water and rail connections east to Chicago and the Great Lakes and west to the Mississippi River. So, they bought zinc-bearing property in Lafayette County, Wisconsin, and began negotiation with the Illinois Central Railroad (ICRR) to acquire acceptable transportation rates. Fortunately, the mayor of LaSalle, Alexander Campbell, was very keen to bring industry to the city and was instrumental in sealing a deal with the Illinois Central.[15] According to the deal, the ICRR and M&H were partners on largely equal terms. The ICRR agreed to rent them cheap land adjacent to the tracks at nó charge for the first two years and M&H would in turn give them their business.[16] Ironically, the Rock Island Railroad (RIRR) offered them decent land near Peru adjacent to the canal only a stone's throw from the 1870 location of the Illinois Zinc Company (Fig. 2). Coal sites along the ICRR were abundant, however, and the partners were able to buy and lease shafts for very little money. All things considered, location in LaSalle proved to be the best possible choice for Matthiessen and Hegeler at the time.

Growth and Expansion of the Matthiessen and Hegeler Zinc Works

The Matthiessen and Hegeler partnership prospered for two reasons: diligent work and technical expertise. F. L. Clerc wrote the following in *Mineral Resources of the United States* in 1882 about the effectiveness of zinc businesses run by partners:

> "The works are usually owned by partners, who do the work of salaried employees, and consider as profit what would be only the interest on their money and wages at some other occupation. At the same time, the personal supervision of the proprietors and their intimate knowledge of the business makes possible results that could not be expected by a company operating on a larger scale."[17]

Thus, as partners they entered the industry with a slight advantage, though it is not the only reason they succeeded where others failed. The physical location, the growth of and technological innovations at the M&H works, and the rise of competition in the local market were other salient features of the situation. In order to understand the developments of the LaSalle and Peru zinc industries within the regional context, the changing nature of zinc resources and production practices in both the Wisconsin and Missouri regions requires clarification.

Aside from what appears on scant large-scale local maps, little information is immediately available about the early growth of the M&H physical plant from 1860 to 1871. A number of

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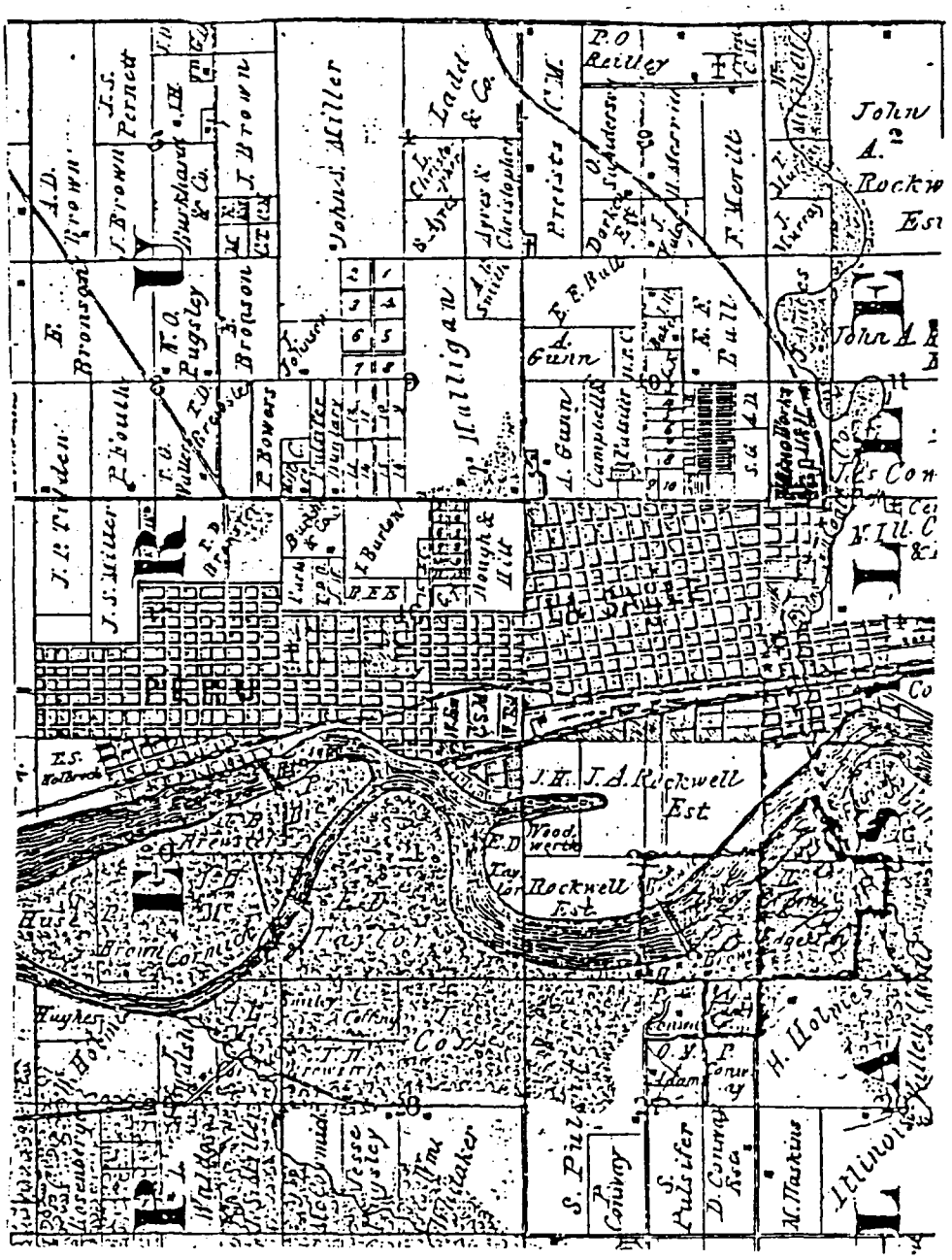
[14] Ibid., p. 16.

[15] Matthiessen & Hegeler Zinc Company, *1858-1958 Our First Century of Service*, 1958.

[16] Matthiessen & Hegeler Zinc Company Records, Series VII, Subseries A, Box 53, Folder 8, Northern Illinois University Regional Archives, Dekalb, Ill., p. 16.

[17] Ingalls, *Lead and Zinc in the United States*, pp. 318-319.



ıre 2. Map of LaSalle and Peru from 1870. The area in the center of the between Peru and LaSalle was the future site of Illinois Zinc Company, the "Zinc Works" at the northeast corner of LaSalle refers to the Mat-ssen and Hegeler concern (Source: Thompson & Everts, *Map of LaSalle County, Ill.*, 1870).

things are evident, however. First, the location of the plant did not basically change. Located at the eastern edge of LaSalle, it occupied a broadly flat site above Vermillion Creek. The plant was served directly by the Rock Island, Illinois Central, and later the Chicago, Burlington & Quincy railroads in 1890.[18] These railroads provided cheap transportation links to major markets all over the East, Midwest and later the West and also connected M&H to its major zinc ore suppliers in the Wisconsin and Missouri regions. M&H was also not far from the Illinois & Michigan Canal which provided slower and cheaper shipment of goods to and from Chicago. Their location on the Illinois river and at the intersection of the above-mentioned railroads provided LaSalle and Peru with a direct link to the Mississippi River. As Kirchherr and Foster stated in an article on the historical geography of Peru, the twin cities "began to take on in [their] own region some of the central place and entrepot characteristics of large east-coast towns of the colonial period."[19]

In this context, the growth and development of M&H was assured if the business climate and acumen of its owners were equal to the challenge of industry building. The specific development of this plant was the catalyst for the transformation of LaSalle and Peru from their joint role as transshipment center to industrial city.[20] Without proper geographical connections, the zinc industry would have floundered in LaSalle as it had in Wisconsin and Missouri.

From the initial construction of a smelting foundry on Illinois Central land in May of 1860, M&H grew quickly. Two phases of development are evident: a period of early expansion from 1860 to 1881, followed by a period of rise to regional dominance between 1881 and 1910. While these dates are somewhat artificial markers, 1910 is the chronological boundary of this study and thus truncates the last period. The latter period continued at least through World War I.

Phase 1: Early Expansion

Matthiessen travelled extensively in southwest Wisconsin and bought or leased considerable amounts of zinc land (Fig. 1). The ore from this region was comparatively low-grade calamine and blende (sulphide), which had a low percentage of zinc and a higher percentage of gangue (useless material affixed to it). These ores were difficult to smelt and a large amount of coal was required for the process. Nonetheless, using a Belgian-style smelting furnace which required manual loading and unloading of charge (ore), M&H produced fairly small quantities of decent spelter at high cost (Fig. 3):

In 1866, a zinc rolling mill was added to the plant, which at that time consisted of one furnace. This addition meant that sheet zinc could be produced, which strengthened the position

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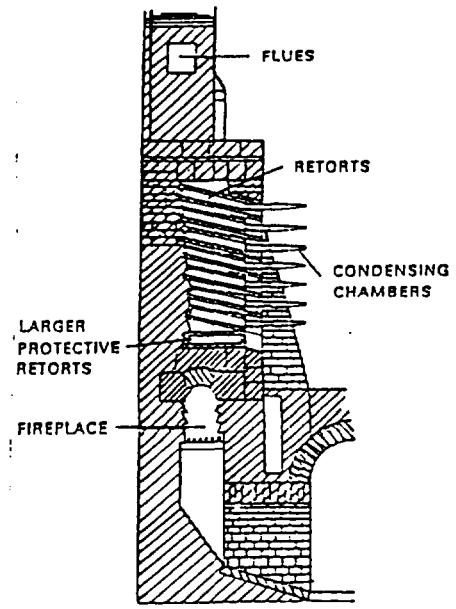
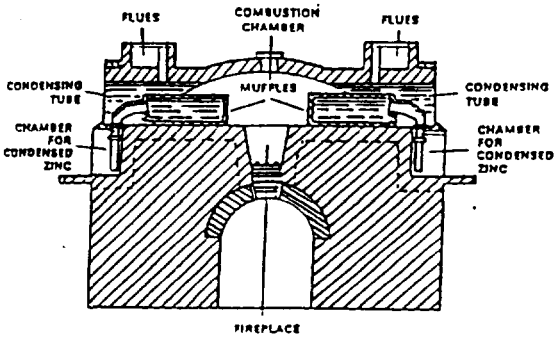
[18] James Kircherr and Russell Foster, "Peru, Illinois: Its Developmental Geography," *Bulletin of the Illinois Geographical Society*, v. 27, no. 2 (Fall 1985), p. 11.

[19] Ibid., p. 6.

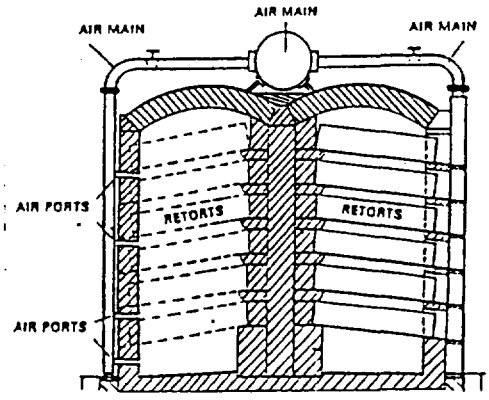
[20] Ibid.



EARLIER BELGIAN COAL FIRED SMELTING FURNACE



SILESIAN SMELTING FURNACE



LATER (HEGELER) TYPE OF PRODUCER GAS FIRED BELGIAN FURNACE

3. Three different types of smelting furnaces: (from left to right) a) an Belgian furnace; b) a Silesian smelting furnace; and c) a Hegeler-type, cer gas fired smelting furnace. The Hegeler-type furnace is more or less hesis of the first two designs (Source: E. J. Cocks & B. Walters, *A History of the Zinc Industry in Britain*).

of M&H in the industry. While not the exclusive U.S. producers of sheet zinc, M&H commanded a large part of the early market, and it was lucrative (Fig. 4).

Matthiessen and Hegeler realized that zinc content and association of impurities in the ore were obstacles to business success. In light of this, they tinkered with smelting practices and shopped around for ore to find the best combination of the two. Because calamine and blende from Wisconsin were cheap and easily transported, M&H used them almost exclusively. This in turn spurred development of further zinc mining and processing in Wisconsin. Thus, in this first phase, the two areas developed a symbiotic relationship.[21]

Phase 2: Rise to Regional Dominance

A number of important developments mark this second phase: the incorporation of the company, the development of extensive zinc mining and processing in the Joplin area in southwest Missouri, the invention of the Hegeler-type smelting furnace, and the subsequent production of sulphuric acid.

In 1871, M&H incorporated and publicly sold stock. E. C. Hegeler became the president and F. W. Matthiessen the secretary of the company. Although both partners owned equal shares of the stock, this event was significance for the company's future. To remain competitive in the national zinc industry by the end of the nineteenth century, M&H needed to be able to fund improvements and expansions. As business historian Olivier Zunz states, "most industrial establishments were incorporated by 1900, even if most of these incorporated companies were still run as partnerships. Incorporation offered a more flexible legal structure for bringing in of capital and also more security against personal liability."[22]

Arguably even more significant than incorporation was the opening of the Joplin zinc district located in Missouri, Kansas and Oklahoma (Fig. 1). This region rose to prominence in the early 1870s when agents began to ship zinc found in the tailings of unused lead mines to St. Louis and Illinois.[23] Prior to this, higher grade Joplin zinc was unavailable due to lack of reliable transportation. With the arrival of the St. Louis and San Francisco, and the Missouri Pacific railroads in 1870, the town of Joplin City was founded and platted.[24] By 1875, the Joplin district furnished ore for 75 percent of the U. S. spelter output and ranked in first position among zinc ore producers.[25] While Wisconsin ore was difficult to separate from its gangue, Joplin miners could easily separate their blende and thus were able to produce ore with a higher pro-

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[21] Dale R. Fatzinger, "Historical Geography of Lead and Zinc Mining in Southwest Wisconsin, 1820-1920: A Century of Change," (Ph.D. diss., Michigan State University, 1971), pp. 105-106.

[22] Olivier Zunz, *Making America Corporate* (Chicago: University of Chicago Press, 1990), p. 200.

[23] H. A. Wheeler, "The Wisconsin District," *Mines and Minerals*, vol. 26, no. 8 (March 1906), p. 329.

[24] Ingalls, *Lead and Zinc in the United States*, p. 287.

[25] Ibid., p. 289.

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re 4. View of the Mattiessen & Hegeler Zinc Works in 1870 (Source: Thomp-
Everts, *Map of LaSalle County, Ill.*, 1870).

portion of zinc.[26] M&H relied heavily on this new supply of ore. In addition, the abundance of rich Joplin blende played an integral part in the expansion of the midwestern zinc industry because it made cheap, high zinc content ore more available.

Between 1881 and 1910, Matthiessen and Hegeler solidified their position as the largest spelter producer in the nation, and perhaps in the world,[27] and their plant site matured (Fig. 5). In 1881 Edward Hegeler invented a furnace which was a hybrid of the Belgian and Silesian-style furnaces (Fig. 3a & b). This furnace differed from existing models in both physical structure and mechanical operation. The Belgian model, which was by far the dominant furnace in use in the Middle West, produced heat in the bottom of the furnace which roasted and smelted the ore contained in retorts (chambers). In the roasting cycle, sulphur, dissassociated from the zinc by roasting, escaped through the furnace flue. After roasting, the ore was fired again at upwards of 1,125 degrees Celsius. Maintaining the heat at this temperature caused the zinc to boil and vaporize. The zinc vapor then condensed into liquid form. Throughout this 24-hour process, a large number of workers manipulated the ore manually. Inherent inefficiency in this design led to the waste of much coal and zinc.

The Hegeler furnace improved on this design. Instead of being vertical, the furnace was 80 feet long, 17 feet wide and 22 feet high (Fig. 3c). Divided into two chambers, heat flowed horizontally through the retorts.[28] Roasting and smelting took 36 hours as compared to the usual 24. Fired by producer gas—a combination of steam and coke—the furnace was mechanically rather than manually operated. These two factors alone improved efficiency and reduced labor costs. Moreover, the furnace trapped the sulphur fumes and generated sulphuric acid.

M&H with one invention accomplished three things: 1) decreased coal usage and increased ore efficiency; 2) eliminated some expensive labor; and 3) created a marketable residual product. While this invention did not singularly propel them to a position of dominance, it certainly gave them a distinct advantage over almost all Midwestern spelter producers.[29] Other eastern zinc producers would soon develop a mechanically-operated furnace, but, among the western manufacturers, M&H was the most advanced.

M&H's advantage was so large that it resisted the fierce competition introduced with the discovery in 1895 of natural gas in Kansas, which enabled zinc producers to smelt ore much more cheaply than before. Fortunately, the discovery one year later of a magnetic separation process by J. P. Weatherill offset this and further cemented M&H's advantage.[30] Weatherill's in

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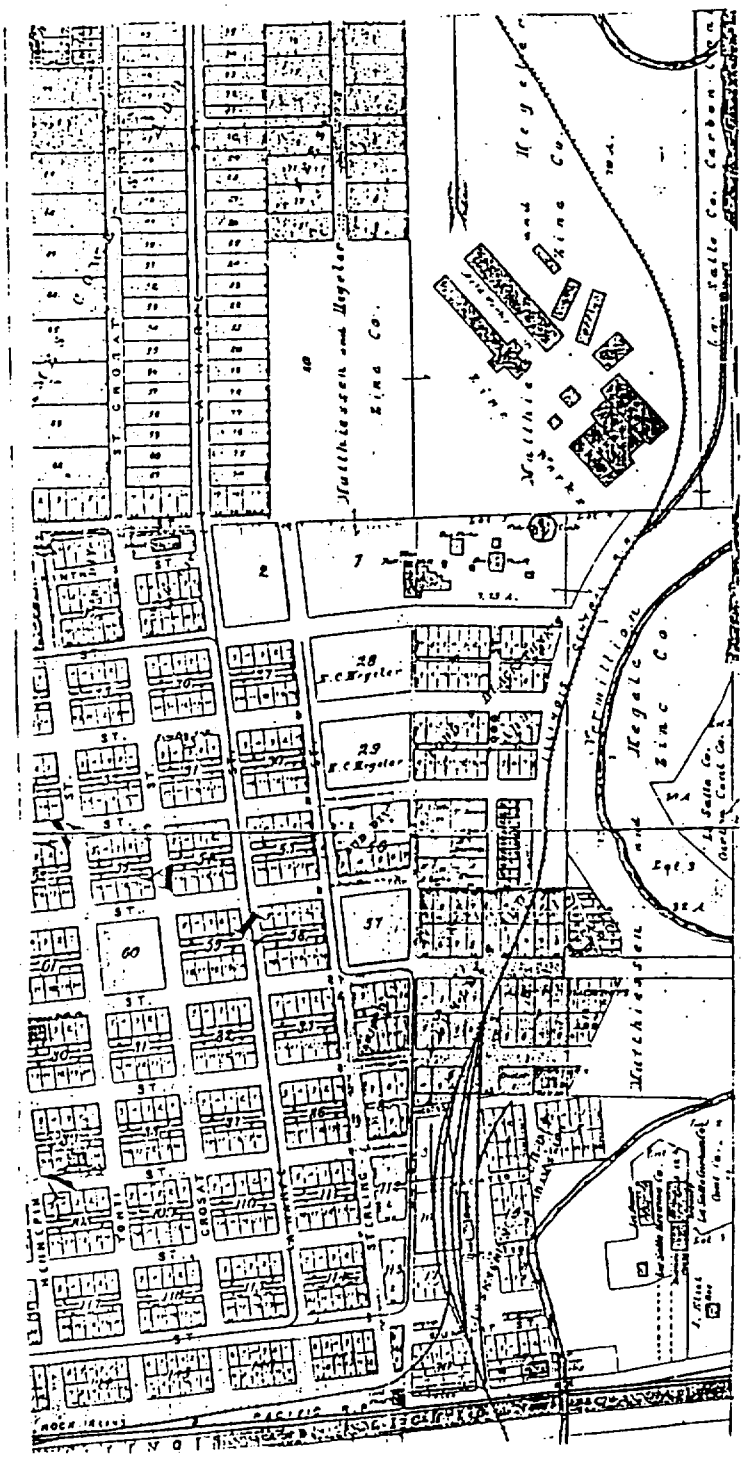
[26] Ibid.

[27] "The Mattiessen & Hegeler Zinc Works, on the edge of LaSalle, reminding one, in their arrangement and general atmosphere, of great manufacturing establishments in Europe, are the largest combined zinc and sulphuric-acid plant ijn this country." See A. Dinsmore, "Coal Mines and Zinc Works at LaSalle, Illinois," *Mines and Minerals*, vol. 23, no. 9, April 1903, p. 397.

[28] U.S. Department of Commerce, *World Survey of the Zinc Industry*, Supplement to Commerce Reports, no. 246, (Washington, D.C.: Government Printing Office, June 30, 1924), pp. 11-30.

[29] Ingalls, *Lead and Zinc in the United States*, p. 323.

[30] Charles Francis Watson, "The Evolution of the Lead and Zinc Mining Industry of Southwestern Wisconsin," Master's Thesis, University of Chicago, 1928, p. 87.



ure 5. Map segment shows the major structures and geographical location Matthiessen and Hegeler Zinc Works in 1891 (Source: Alden, Ogle and Company, *Plat of LaSalle County, Ill.*, 1892).

Table 1. Zinc Manufacturers in LaSalle and Peru, 1880

	M&H	Ill. Zinc Co.	Lanyon & Co.	Thos. Kinsman
Capital	$426,000	200,000	15,000	20,000
Employees	570	220	40	40
Skilled labor wage	$2–4.50	1.80–?	2.25	2.20
Unskilled labor wage	$1.20	1.10	1.50	1.25
Value of material	$885,000	289,689	35,000	23,660
Value of product	$1,222,000	440,000	75,000	35,000
Waterpower	yes	no	no	no
Steampower	yes	yes	yes	yes
Boilers	22	2	1	1
Engines	7	1	1	1
Horsepower	350	50	30	40

Source: 1880 Census of Manufacturing, LaSalle County, Illinois, manuscript schedules.

vention facilitated the separation of lead and iron from zinc before smelting. M&H was then able to use not only Joplin ore, but also the lower grade ore from Wisconsin and previously unmined reserves in Colorado.[31] Equipped in this way, M&H handled "processes of calcining the [zinc] ore; converting the sulphurous oxide thus obtained into sulphuric acid; the reducing of the metal to spelter; and the manufacture of spelter into the merchantable sheet zinc, etchers', lithographers', and battery plates, etc."[32] For an idea of the myriad uses to which the metal can be put, see Appendix 1.

Other Zinc Operations

Although M&H was the largest producer of spelter in the country, it did not monopolize regional or local industry. Prior to these inventions, the zinc industry was a rather attractive investment. Competition in Illinois and particularly LaSalle and Peru increased markedly between 1870 and 1880. Although the surviving 1870 Census manuscript records fail to mention M&H, by the 1880 Census LaSalle and Peru boasted no less than four zinc manufacturers (Table 1). Additionally, after 1893, the Collinsville Zinc Company, located outside St. Louis, and the Mineral Point Zinc Company entered the zinc market.

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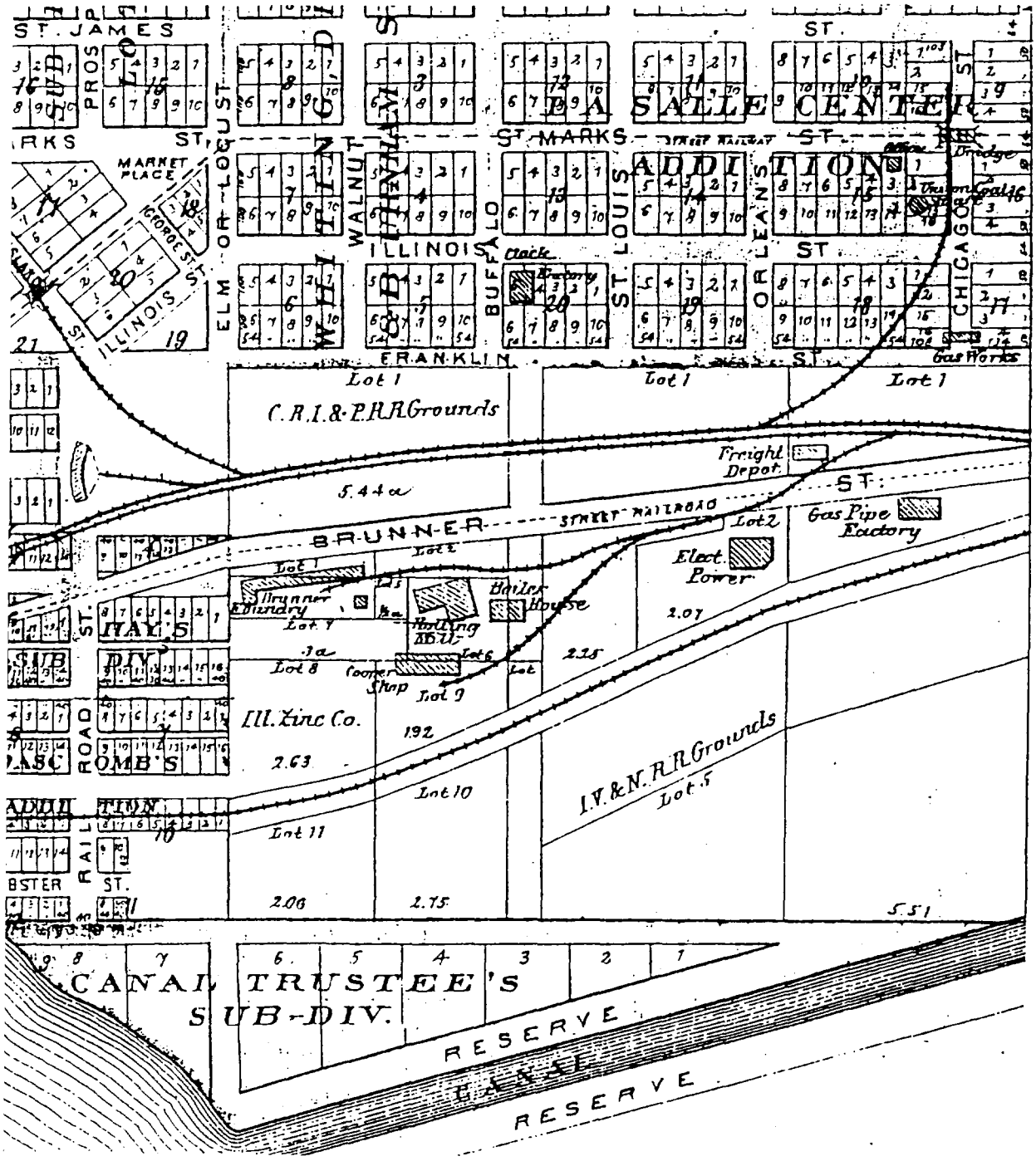
[31] M&H met the competition by also using gas, but "producer gas" they manufactured on the spot, from their own coal mine, yielding gas which, "in an ingeniously devised furnace, is burned with very considerable efficiency." See H. Foster Bain, "The Smelting of Dubuque Ores," *Mines and Minerals*, vol. 20, no. 10 (May 1900), p. 477.

[32] Dinsmore, "Coal Mines and Zinc Works," pp. 397–398.



ure 6. Map segment shows the location and extent of the Illinois Zinc Co. Peru. At this time, the company had not added the sulpheric acid plant

rce: Alden, Ogle and Company, *Plat book of LaSalle County, Ill.*, 1892).

Unfortunately, the census figures are woefully incomplete, so Table 1 may represent less than a full listing. The second most prominent zinc business was the Illinois Zinc Company, situated in Peru snugly between the Rock Island railroad and the I&M Canal. Just as M&H established LaSalle as an important regional city, the Illinois Zinc company did the same for Peru.[33] Although the latter was by far the largest industry in Peru, it was less than half the size of M&H (Fig. 6). Patent restrictions precluded the use of the Hegeler furnace until after 1891, and thus reduced the chances for more efficient smelting and sulphuric acid production. Illinois Zinc did not make this addition until 1897.[34] Despite this, the local importance of Illinois Zinc is best exemplified by the subsequent founding of three related businesses in Peru: a weather-stripping firm in 1897, American Nickeloid Company in 1899, and National Sheetmetal in 1901.[35]

The remaining two firms listed in the census were much smaller. Apparently, Robert Lanyon and Company seems to have be connected to a number of companies in Missouri, Kansas and Indiana operating with the same name.[36] Any other statements about these companies or the existence of others in LaSalle or Peru would be speculative.

Conclusion

Matthiessen and Hegeler operated a tremendously successful business in a very turbulent national economic context. Furthermore, they did so against tremendous odds. They had a little bit of luck, though. Within this period a number of key changes occurred: tremendous expansion of the railway network within the Middle West;[37] transition of companies from partnerships and small business ventures to corporations with public stock; growth of zinc mining from Wisconsin to Missori and then westward into Colorado; and innovation in methods of zinc production. A larger railway network meant better trade, shortening of distances, increased information flow between companies and thus a stronger business environment. Better connections made the zinc industry more enticing as an investment, heightened competiton and eliminated a lot of the weaker producers. The most crucial factor that arises by the turn of the century is that, because of the cheapness of transportation, zinc ore goes to cheapest fuel. This had always been a factor, but many businesses like M&H and Illinois Zinc Company were able to resist this pressure far into the 20th century—instances of locational inertia maintained through energetic technical innovation. But when natural gas was discovered in Kansas in 1896, this was the beginning of the end for M&H. Kansas and Oklahoma then became favorable places to open zinc works. What kept them in business longer than most other producers has been a theme in this study—diligent work and technical expertise. In the end, it is important to note this

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[33] Kircherr and Foster, "Peru," p. 9.

[34] Sanborn Fire Insurance Maps, *Peru, Illinois*, 1897.

[35] Kircherr and Foster, "Peru," p. 10.

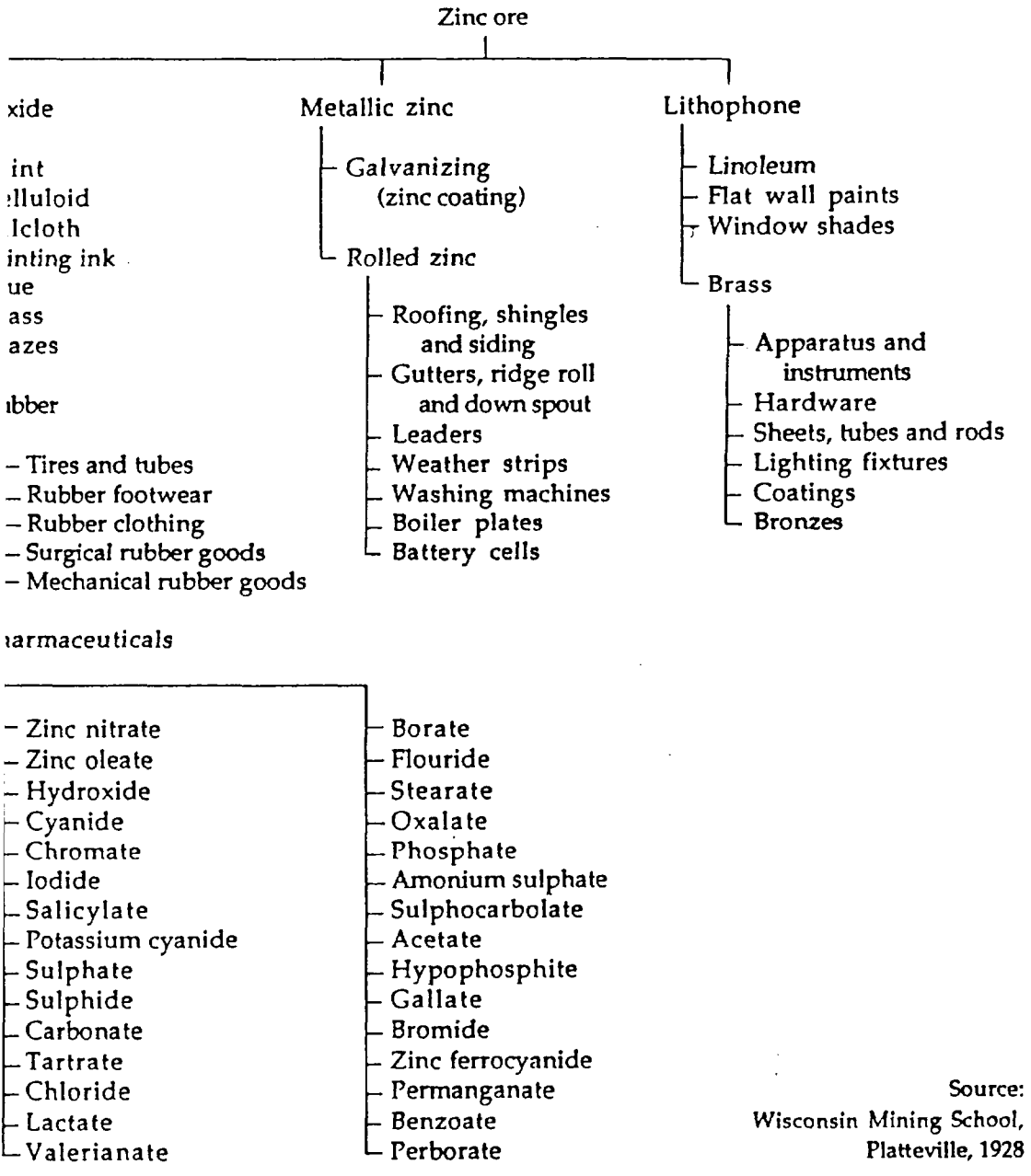
[36] E. Hedberg, *Mines and Minerals*, vol. 19, no. 3 (October 1898), p. 498.

[37] In 1860, there were 30,626 miles of track nationwide. However, by 1900 the number had climbed to 258,784 miles.

e geography, economics and history only determine the outcomes of the actions of men and
ı to a certain extent. The greatest variable is human determination and intelligence.

Appendix 1.

The Uses of Zinc



Source:
Wisconsin Mining School,
Platteville, 1928

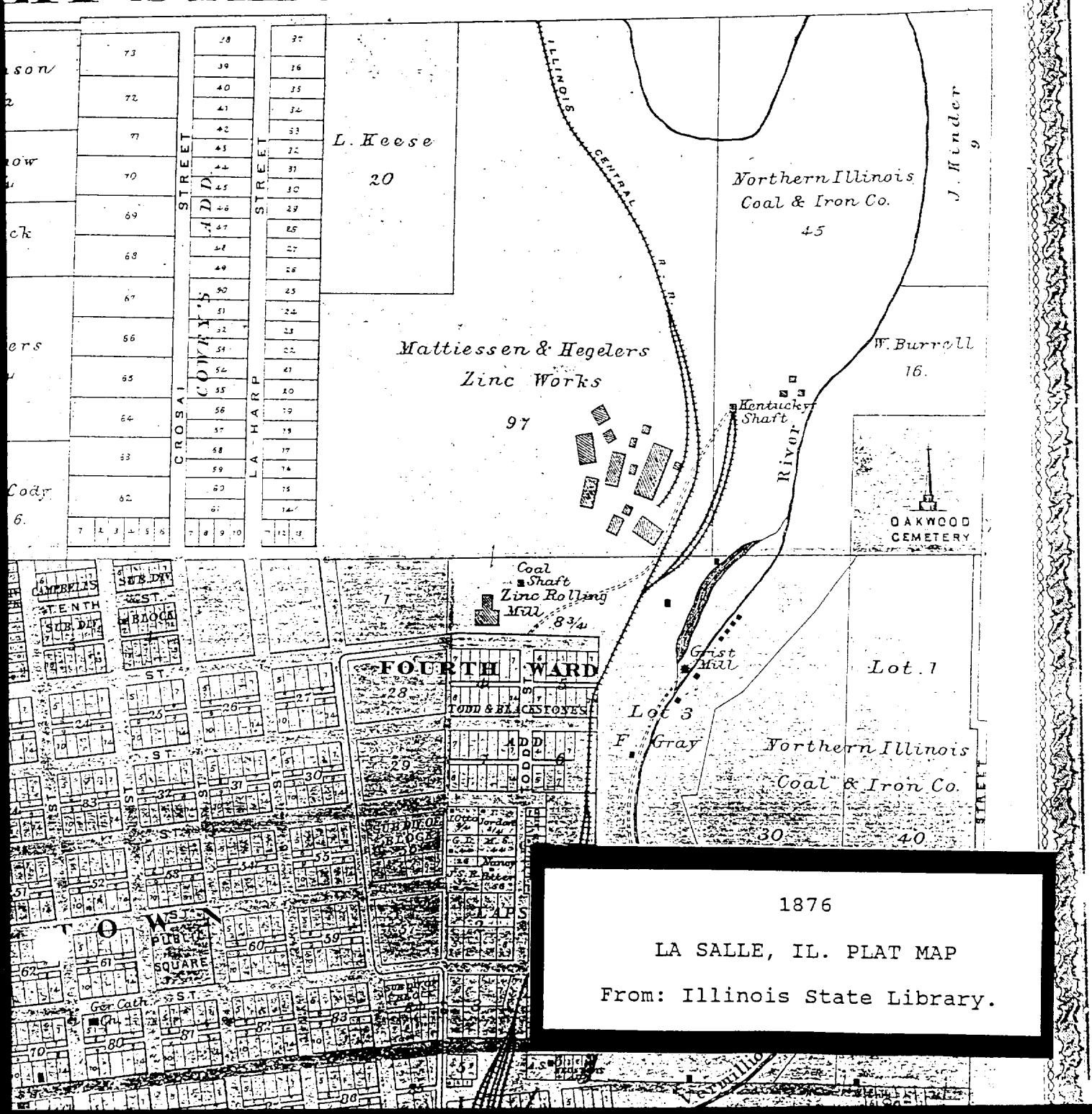
REFERENCE 7

Zinc Comes to La Salle: A Historical Geography
of the Matthiessen and Hegeler Zinc Company and the
Midwestern Zinc Industry."

REFERENCE 8

Historical Plat Books of La Salle/Peu, Il.

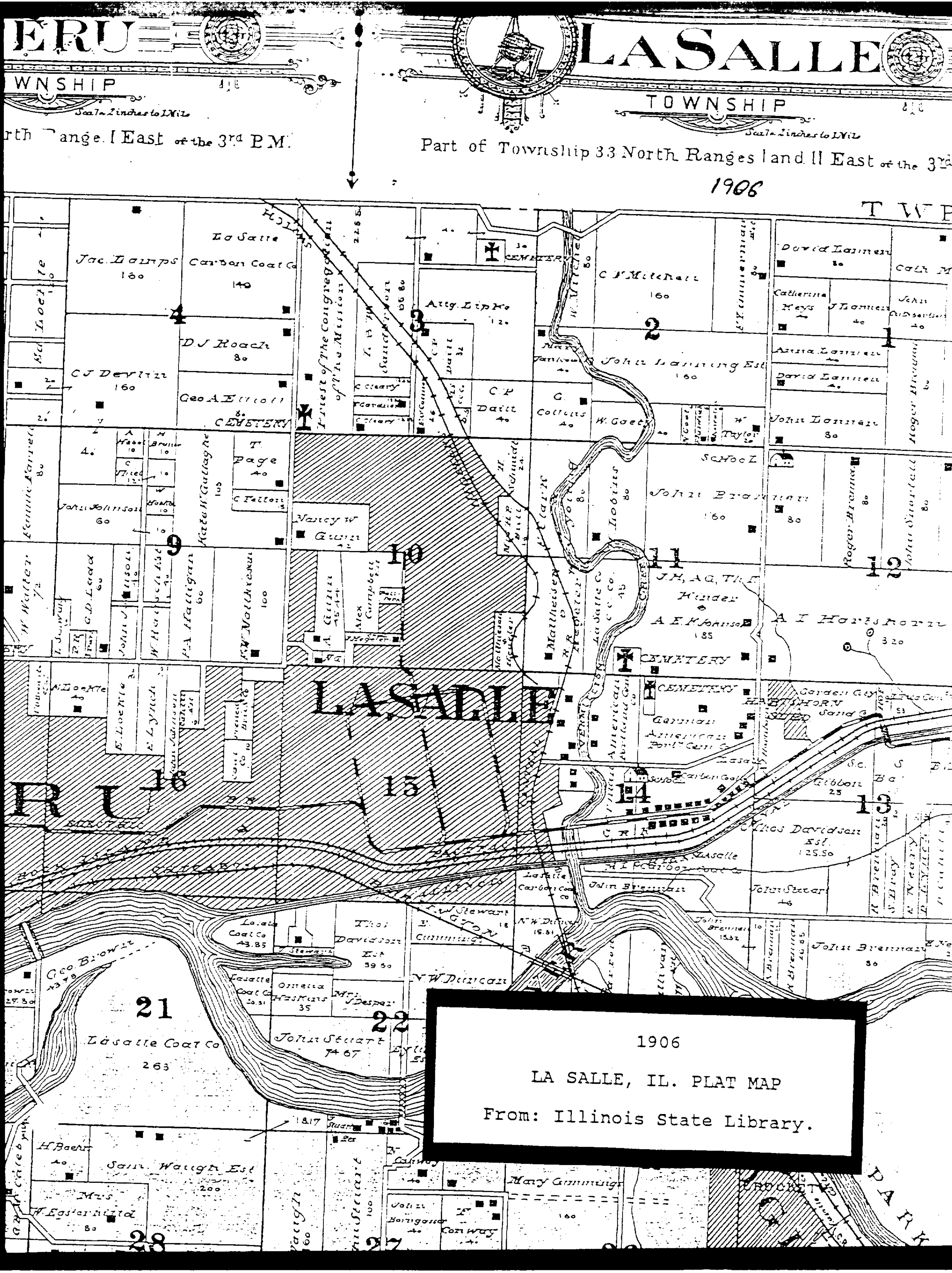
LA SALLE



1876

LA SALLE, IL. PLAT MAP

From: Illinois State Library.



1906

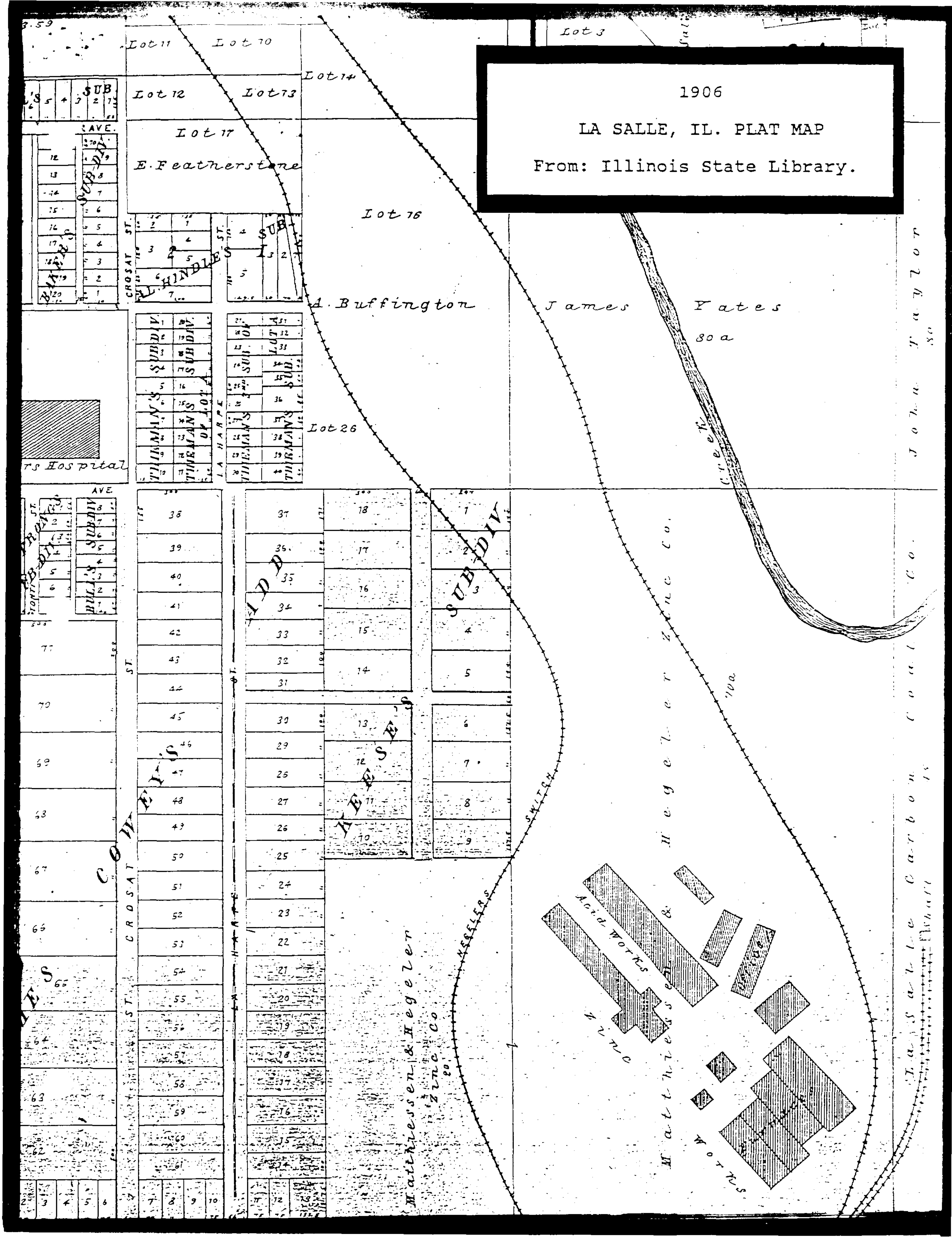
LA SALLE, IL. PLAT MAP

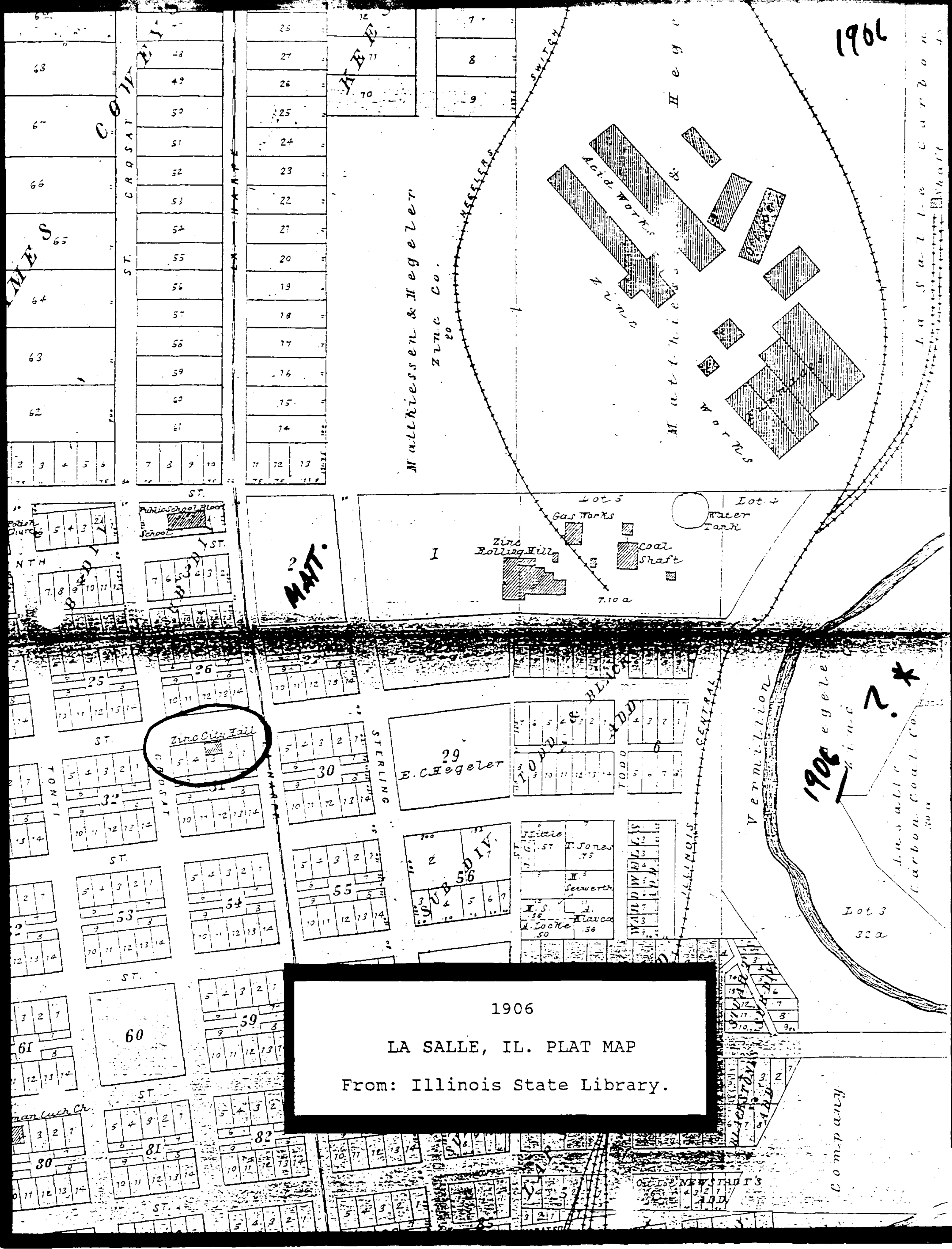
From: Illinois State Library.

1906

LA SALLE, IL. PLAT MAP

From: Illinois State Library.

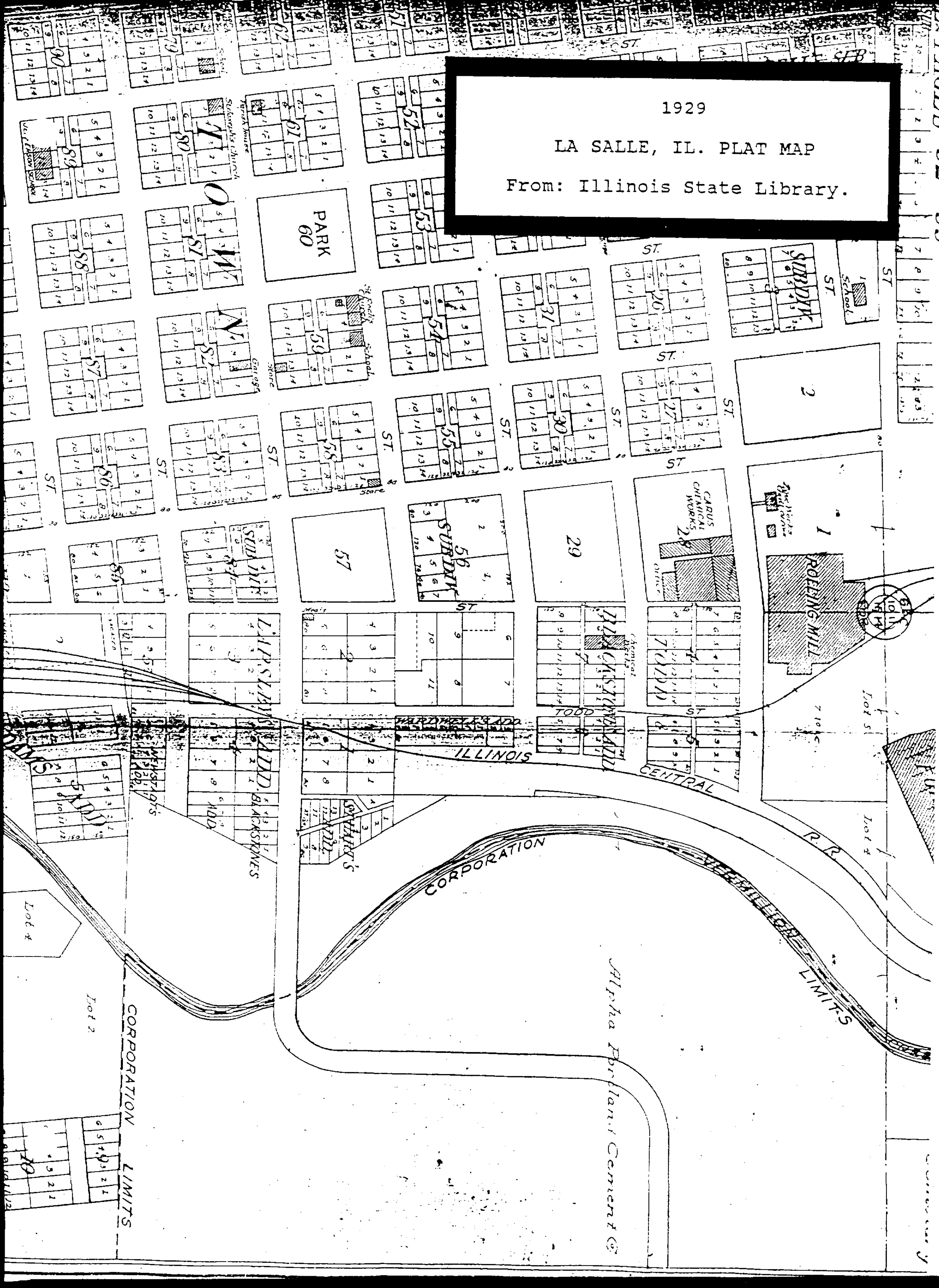


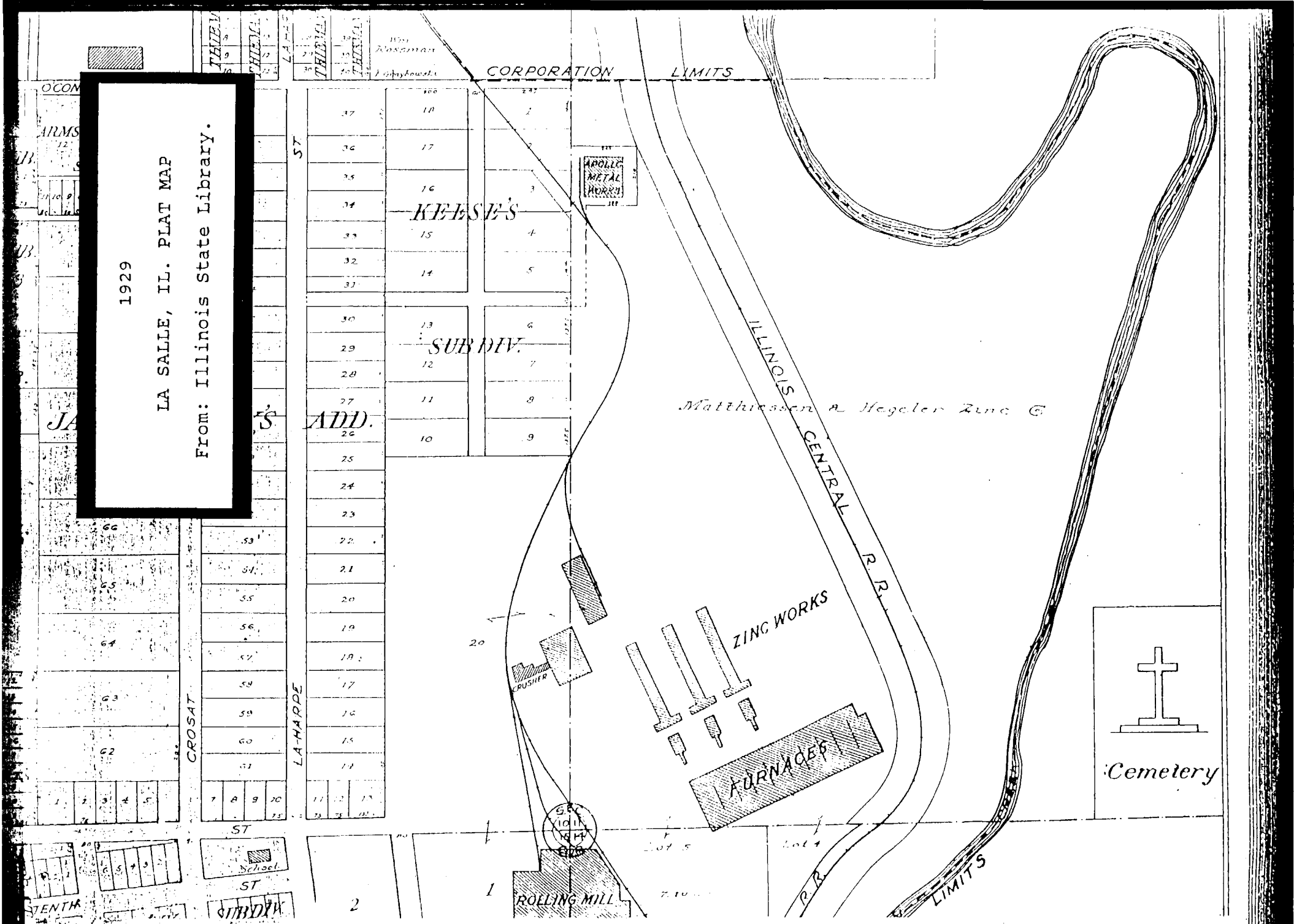

1906
LA SALLE, IL. PLAT MAP
From: Illinois State Library.
Matthiessen & Hegeler
Zinc Co.
Acid Works
Zinc Rolling Mill
Gas Works
Coal Shaft
Water Tank
Zinc City Hall
E. C. Hegeler
Public School Block
School
Crosat St.
Sterling
Tonti
Todd
Illinois Central
Vermillion
La Salle Carbon Coal Co.
Company
1906
MATT.

1929

LA SALLE, IL. PLAT MAP

From: Illinois State Library.





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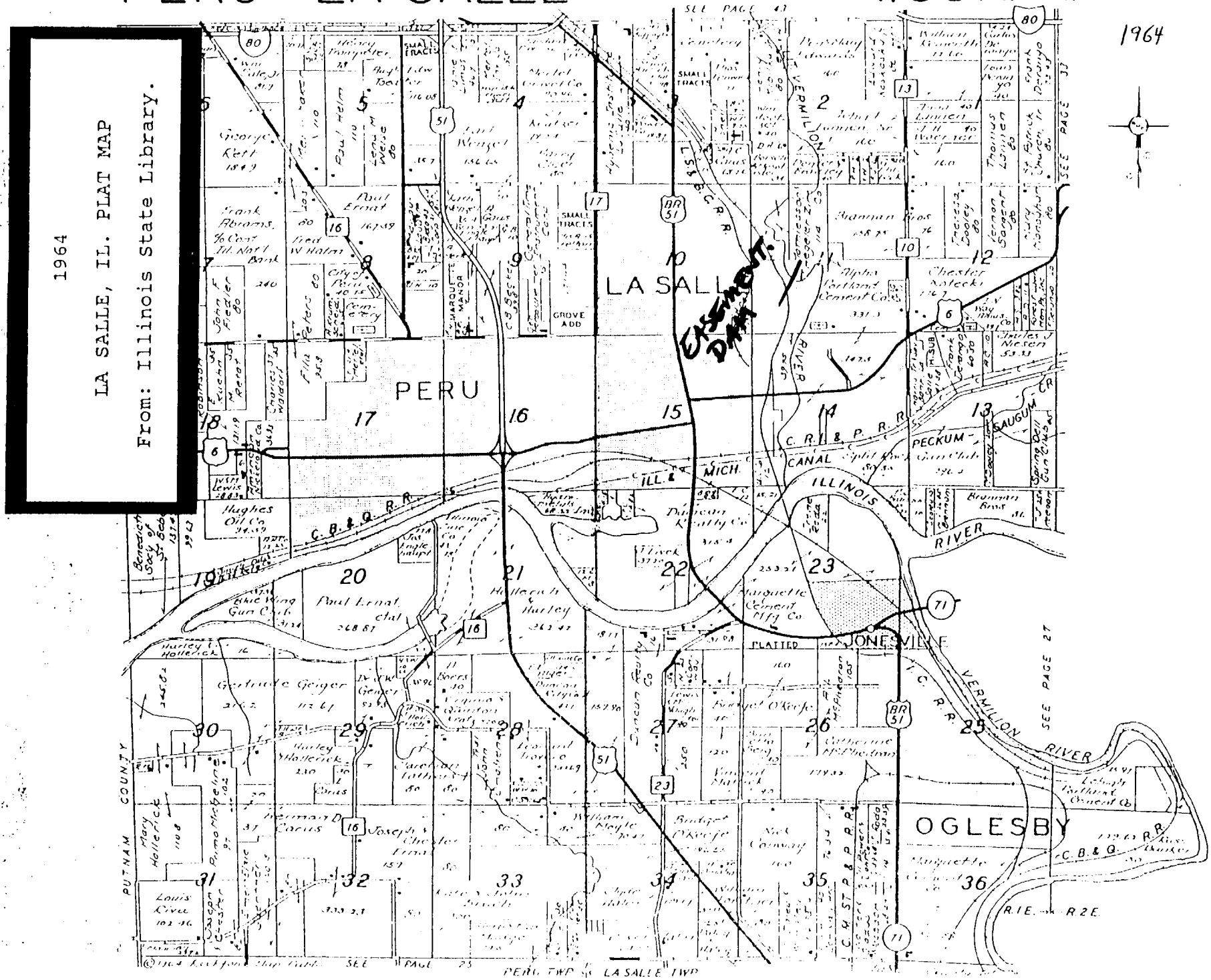
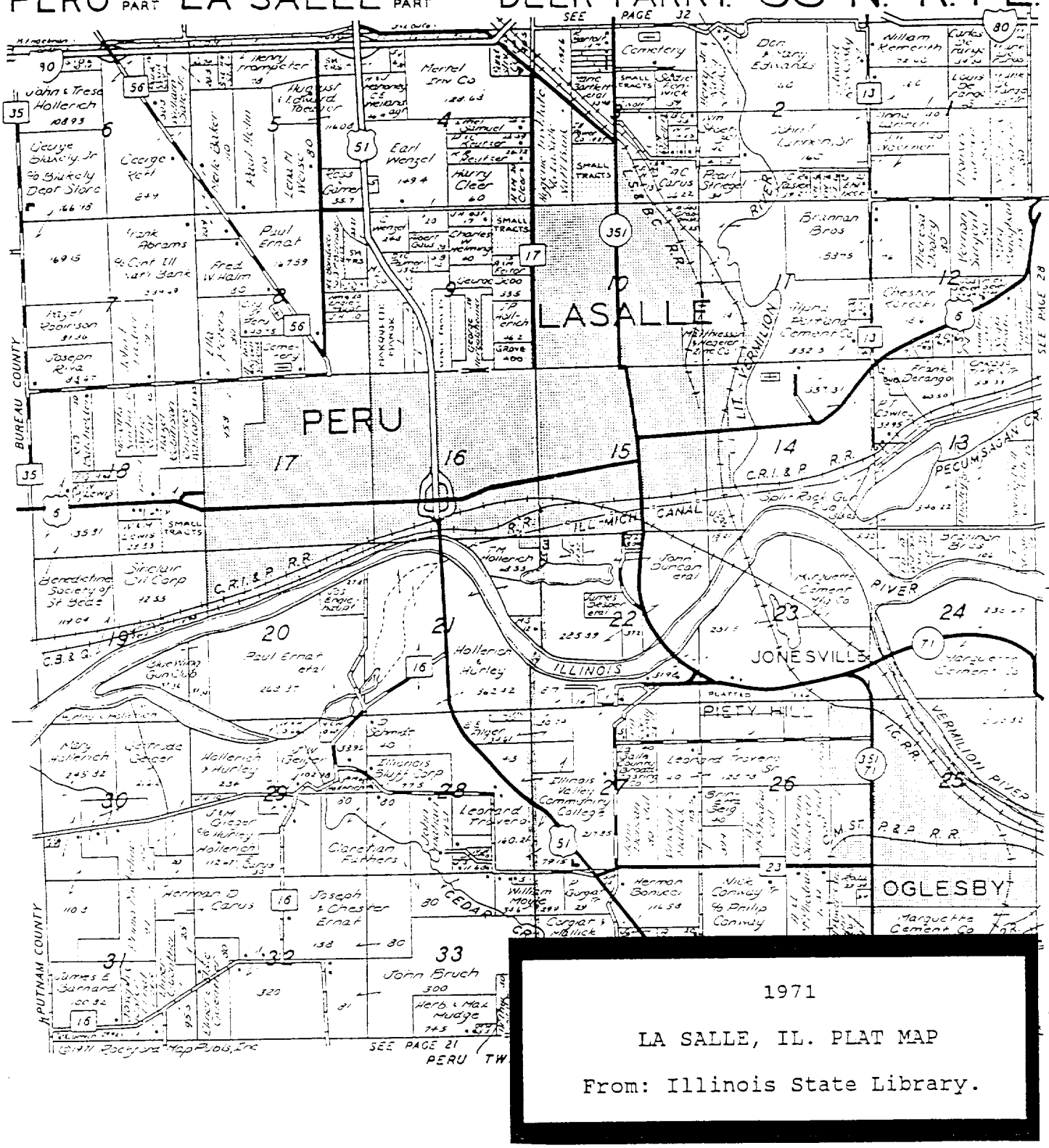
1964

1964

LA SALLE, IL. PLAT MAP

From: Illinois State Library.

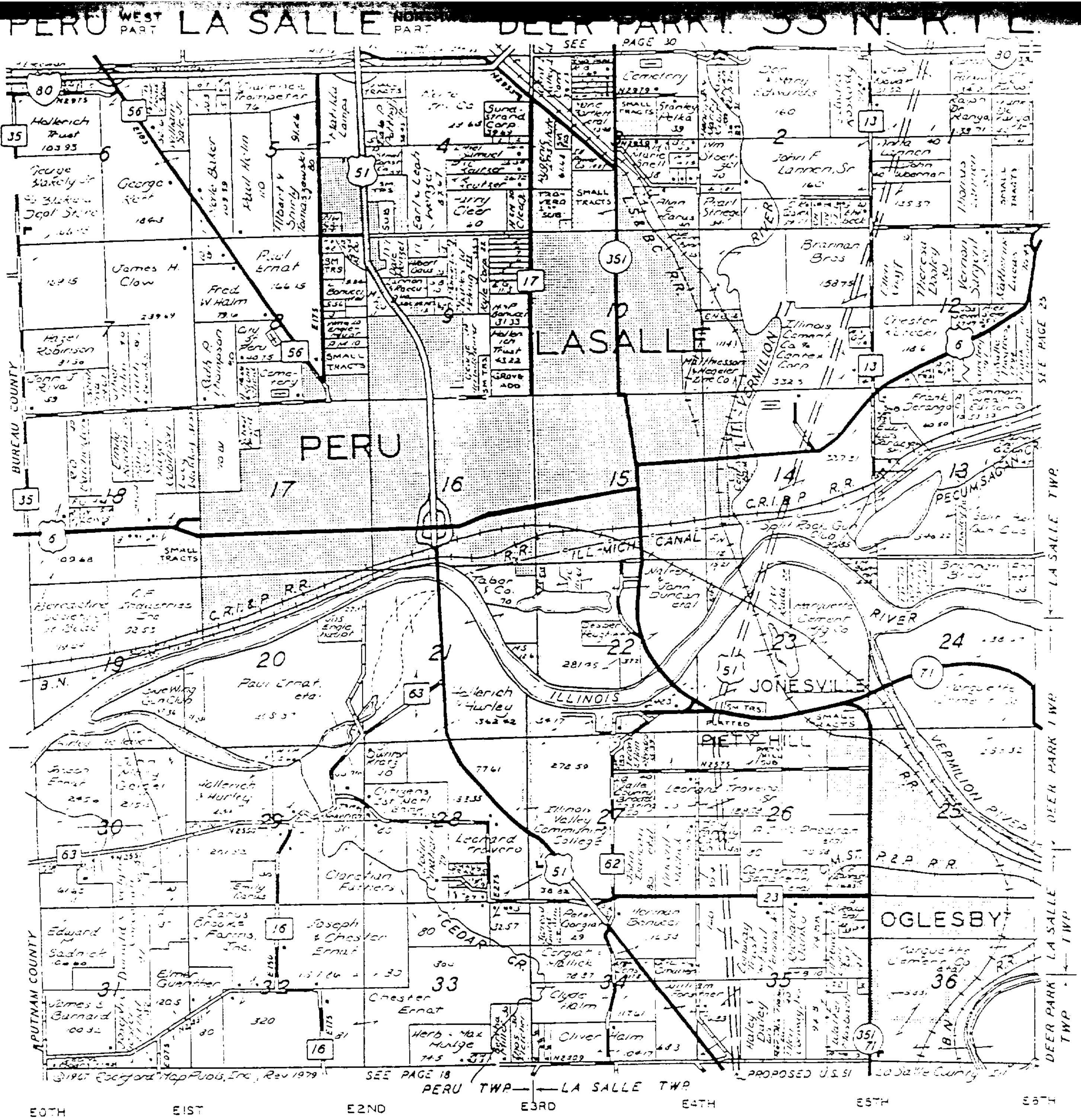




1971

LA SALLE, IL. PLAT MAP

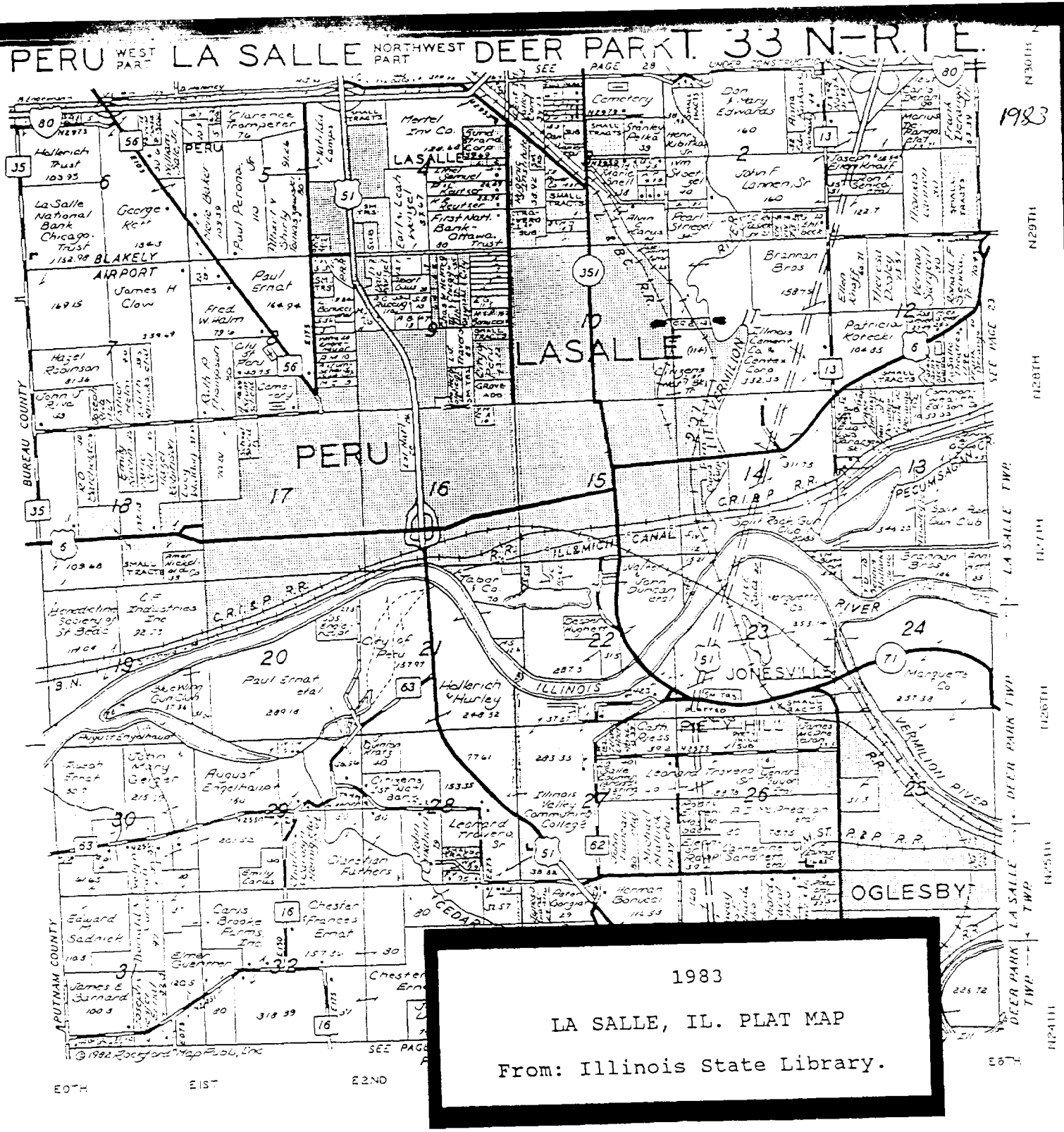
From: Illinois State Library.



1978

LA SALLE, IL. PLAT MAP

From: Illinois State Library.



1983

LA SALLE, IL. PLAT MAP

From: Illinois State Library.